

**Postoperative Pain Assessment and Management
The Effects of an Educational program on Jordanian
nurses' practice, knowledge, and attitudes**

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ABSTRACT

Aims: The overall aims of this thesis was describe the current nursing postoperative pain assessment and management practices in the surgical wards in Jordan and evaluate the effectiveness of implementing a postoperative pain management (POPM) program in improving the Jordanian nurses' POP assessment and management practices in the surgical wards. Lewin's Force-Field Model for change provided the structure for planning for and implementing the POPM program.

Method: Both qualitative and quantitative approaches were used. Qualitative content analysis inspired by the hermeneutic philosophy was used to describe the surgical nurses' experiences in caring for patients having POP. Data were collected by interviewing 12 registered nurses working in surgical wards at four hospitals in Jordan. A retrospective quantitative design was used to collect data on the documentation system and strategies of the POP assessment and management in the surgical wards. A total of 322 patients' records obtained from six hospitals in Jordan were audited in six-month period. The records review was performed using three audit instruments. Later, a POPM program for nurses was implemented in two surgical wards at a university hospital in Jordan. The program was evaluated by means of a quasi-experimental design with a nonequivalent control group where the control group (120 patients) and the intervention group (120 patients) were not drawn from the same population. All registered nurses (65 nurses) employed in the two surgical wards participated in the study to implement the program. First, assessment of patients' communication about pain with nurses and their satisfaction about nurses' intervention were assessed by means of a questionnaire. Second, the quality of nurses' pain assessment was evaluated by comparing the attending nurses' assessment of patients' pain intensity rating scores with the researcher's rating scores of the same patients. Third, a questionnaire was used to test the nurses' knowledge of and their attitudes toward pain. Forth, the records were audited before and after the intervention. The POPM program was implemented for three months.

Findings: The findings of the studies I and II formulated the foundation where the researchers can illuminate the main issues and obstacles in the process of change toward better POP management. Findings from these studies draw attention to the fact that there is an urgent need for improving POP assessment, management and documentation. The findings illustrated that the implementation of an educational program for nurses was successful. First of all, the quality communicated information about pain and pain management with patients was significantly improved. Secondly, the nurses developed the habit of assessing POP intensity using numeric rating scales, in addition to the assessment of other pain characteristics. Thirdly, the nurses improved their knowledge about POP, and their attitudes toward it were evidently changed. Finally, the nurses improved their practice in documenting patients' pain. The patients' records showed a significant difference in the amount and the quality of nursing documentation which reflected the fact that nurses became more aware about the importance of documentation and might also means that they change their practices toward better POP management.

Discussion and Implications: The studies provide several contributions to the knowledge and understanding of the POP current management practices such as the recognition of the surgical patients suffering due to the unsatisfactory pain management routines, the impact of health institutions restraints on nurses that prohibit them from providing quality of care for patients with POP, and the need to change the current practices of nursing documentation of POP. The findings add to a growing body of literature on the benefits of implementing educational programs for nurses to improve their roles in caring for patients with POP. The findings of this thesis provide opportunities for nurses to evaluate themselves in the area of POP knowledge and management practices which may affect their caring abilities. Another implication related to nursing practice is that this study might increase the awareness of the health care professionals and the health institutions administration toward the establishment of team work to induce change with a common purpose in upgrading the quality of pain assessment and management. Managers and supervisors can facilitate the application of educational programs and incorporate with the team to move more quickly in the desired change. Implications of the study may be relevant to nursing education and in continuing education of health care institutions.

Keywords: postoperative pain, nurses' knowledge, nurses' attitudes, surgical wards, pain management program, Jordan

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ABBREVIATIONS

AHCPR	Agency for Health Care Policy and Research
AHRQ	Agency for Health Care Research and Quality
ASA	American Society of Anesthesiologists
APS	Acute Pain Service
JUH	Jordan University Hospital
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
NANDA	North America Nursing Diagnosis Association
NRS	Numeric Rating Scale
PAAT	Pain and Anxiety Audit Tool
POP	Postoperative Pain
POPM	Postoperative Pain Management
RNs	Registered Nurses
VAS	Visual Analogue Scale

INTRODUCTION

The starting point of this theses was the eager to know how patients after surgery are treated to decrease or relief their suffering of pain, what nurses can do to help in caring for those patients, and what can be done to improve the nursing care for post-operative patients. There is a growing body of knowledge directed towards understanding postoperative pain (POP) among patients who have undergone a surgical experience. This knowledge is mostly concerned with the examinations of the patient's responses toward pain management services. However, limited research has been conducted in the area of studying nurses' experiences in working with patients having POP. Although many studies (Bird, & Wallis, 2002; Green & Tait, 2002; Broekmans, Vanderschveren, Morlion, Kumar & Evers, 2004; Ponte, Johnson-Tribino, 2005; Gunningberg & Idvall, 2007) investigated the nurses' knowledge of POP and nurses' attitudes towards its management, these studies were conducted generally in the western world. There were only a few studies that have investigated POP in the Middle East area where Jordan is located and none of these studies were conducted in Jordan. This has left a large gap in the area of research investigating the nurses' knowledge, attitudes, and views in relation to POP. Consequently, this thesis originates from the need to investigate the current status of POP assessment and management in the surgical wards in Jordan. Such knowledge is important in the encouragement of improving nursing care that aims in delivering high quality of nursing practice for patients having pain in the postoperative period. Moreover, this study provides evidence based data that are necessary for further development of nursing curricula for the under- and postgraduate nursing programs as well as in-service education in hospitals.

This thesis consists of five chapters. Following this introduction, the first chapter provides the back ground of the four studies that the thesis is based on. This chapter aims to contextualise the studies within a range of theoretical and clinical perspectives available in the literature and to define gaps which the studies sought to address. The focus of the literature review is on the nurses' assessment, management, and documentation of POP in surgical wards. The second chapter provides an overview of the methodological positions that underpin this thesis. The chapter has seven main sections: the theoretical framework, the design, the sample, the setting, data collection procedure, data analysis, and the ethical considerations. The third chapter presents the findings of the four studies. The fourth chapter discusses the findings and presents the methodological considerations in interpreting the findings. The last chapter draws up the conclusion and presents the implications of the studies. The final section of this thesis contains the full texts of the four conducted studies.

CHAPTER I

BACKGROUND

This chapter aims to contextualise the studies within a range of theoretical and clinical perspectives available in the literature and to define gaps which the studies seek to address. It starts with a description of the concepts that are related to POP; its assessment, management, and nursing documentation with particular focus on the literature that is related to nurse's knowledge of and attitudes toward POP. A demonstration of the theoretical background of the thesis is presented at the end of the chapter.

The content in the reviewed literature is grouped into seven sections: the concept of pain, theories of pain, POP assessment, POP management, documentation of POP, the nurse's knowledge and attitudes toward POP management, and POP management programs.

The Concept of Pain

Pain is often described in the literature as a subjective complaint that acts as a warning sign (Rockville, 2000; Hartric, 2004). In 1968, McCaffery defined pain as "whatever the experiencing person says it is, existing whenever she/he says it does" (McCaffery & Pasero, 2002). This definition emphasizes that pain is a subjective experience. It also stresses that the patient, not the health care provider, has the authority on the pain and that his or her self-report is the most reliable indicator of pain. According to Melzack's gate control theory, pain is not just a physiological response to tissue damage but also includes behavioral and emotional responses expected and accepted by one cultural group which may influence the perception of pain (Melzack, 1996; Miaskowski, 2004). Some Psychologists linked pain with suffering and suggested that certain psychological modulators of pain sensitivity are dependent on the patient's characteristics (Jones & Zachariae, 2004). As a result of the changes in the conceptualization of pain, multidisciplinary approaches to its treatment have been developed.

Acute pain is defined as a complex unpleasant experience with emotional and sensory features that occur in response to trauma (International Association for the Study of Pain, 1994). It is sudden in nature that lasts less than 3 months, or as long as it takes for the healing process to occur (Lewis, Heitkemper, & Dirksen, 2005). Postoperative pain is a type of acute pain. The American Society of Anesthesiologists (ASA) defined pain in the postoperative setting as pain that is present in a surgical patient because of a preexisting surgical procedure, or a combination of diseased-related and procedure-related resources (American Pain Society, 1995).

After surgery, pain is a common experience for patients in the surgical ward because of the tissue trauma (Klopfenstein, Hermann, Mamie, Van Gessel & Forster, 2000; Ekman & Koman, 2004). Nerve impulses generated from the site of incision are transmitted to the dorsal horn of the spinal cord that -in return- projects neurons forward toward the cerebral cortex in the brain. The brain interprets the signal, processes information from experiences, knowledge, and cultural associations, and perceives pain

(Bonica, 2000; Lewis et al, 2005). Consequently, the POP can generate enormous individual differences in pain perception. The perception of pain is characterized by an unpleasant sensation and negative emotions.

Theories of Pain

Many theories have been proposed to explain the mechanisms of pain caused by the body tissue trauma or damage of peripheral nerves. In 1943, Livingston proposed the theory of central summation. He suggested that stimulation resulting from nerve and tissue damage activates fibers that project to neuron pools in the spinal cord, in consequence, creating activity that spreads to lateral horn cells and ventral horn cells in the spinal cord, activating the sympathetic nervous system and somatic motor system. As a result, this activation produces vasoconstriction of the blood vessels, increases heart work load, induces muscular spasm, and fear and anxiety (Bonica, 2000).

Hardy, Wolff, and Goodell (1952) introduced their theory of pain in the 1940s that explained the influence of the psychological factors on pain. The theory suggested the two components of pain: the perception of pain and the reaction to pain. The perception of pain is a process that has special structural, functional, and perceptual properties and is accomplished by means of simple and primitive neural receptive and conductive mechanisms. The reaction to pain, conversely, is a complex process relating the cognitive functions to past experience, culture, and a range of psychological factors that influence the reaction pain stimuli. In other words, this theory is linking the stimulus intensity and the perception of pain.

In 1959, Noordenbos proposed the sensory interaction theory (Bonica, 2000). This theory proposed that there are two systems involving transmission of pain: a slow system that involved the unmyelinated and thinly myelinated fibers, and a fast system that involved the large myelinated fibers. Noordenbos suggested that the slowly conducting somatic afferent fibers and small visceral afferents project into the dorsal horn of the spinal cord and inputs from the small fibers are transmitted to the brain to produce pain. The fast-acting fibers inhibit transmission of impulses from the small fibers and prevent summation from occurring (Bonica, 2000).

The classic gate control theory of pain, described by Melzack and Wall in 1965 proposed to explain the relationship between pain and emotions (Melzack, 1996). According to the theory, a gating mechanism occurs when a pain impulse travels to the dorsal horn of the spinal cord where trigger cells (T-cells) influence the transmission of pain impulses. The pain stimulation of the large-diameter fibers inhibits the transmission of pain, the gate closes and impulses are less likely to be transmitted to the brain. On the other hand, when smaller fibers are stimulated, the gate is opened. This mechanism is influenced by descending nerve fibers from areas in the brain that regulate thought, beliefs, and emotions. The gate-control theory helps to understand the role of psychological factors in the perception of pain. The theory explains the effects of some interventions such as distraction and imagery in relieving pain.

All of the preceding theories have explained pain related to tissue damage that is mostly related to acute pain such as the postoperative pain. Other theories in the lit-

erature explained the occurrence of the other types of pain such as chronic pain, pain related to certain diseases, or pain with undefined pathology.

Postoperative Pain Assessment

Ongoing assessment is necessary to evaluate changes in pain and the effectiveness of its management. The American Pain Society stresses that health care professionals should consider pain as the fifth vital sign (Campbell, 1995; Merboth & Barnason, 2000). Therefore, the patient's pain should be assessed at least as often as vital signs are taken. Accuracy in pain assessment is a major factor in measuring the adequacy of pain management. This implies that health care professionals should identify the presence of POP for each patient, and score its intensity using standardized scales (AHCPR, 2002; JCAHO, 2003; APS, 2005). Pain scores are documented in writing, making them readily available to all the health care professionals.

There were many suggested assessment tools found in the literature and many scales have been developed to assist the nurse in determining the severity of pain. The use of standardized scales has several advantages. First, they are reliable and objective and thus the accurate way to rate pain severity (Ware, Epps, Herr & Pachard, 2006). Second, they take short time to implement (Coll, Ameen, & Mead, 2004). Third, the same scales can be used to assess the effectiveness of interventions (Solman, Rosen, Rom & Shir, 2005; Solman, Wruble, Rosen & Rom, 2006). One of the most commonly suggested standardized tools is the Numeric Rating Scale (NRS) and the Visual Analogue Scale (VAS) (Bonica, 2000; Coll, Ameen, & Mead, 2004). When using the NRS, the patient is asked to rate their pain intensity on a scale of 0 (no pain) to 10 (the worst possible pain). The VAS is a horizontal line, 100 mm in length, anchored by word descriptors at each end. The patient marks on the line the point that represents his current state. The VAS score is determined by measuring in millimeters from the left hand end to the patient's marks. The Arabic version of the scales is shown in Figure 1.

مقياس الألم المرئي



مقياس الألم الرقمي

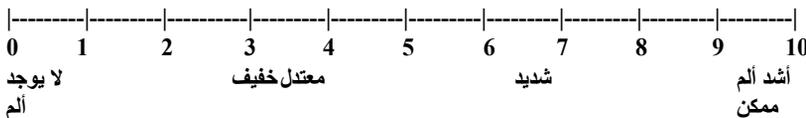


Figure 1: Arabic version of pain rating scales translated by the author (M. A).

Postoperative Pain Management

Effective postoperative pain (POP) management is an essential component in the provision of quality of care (Dolin, Cashman, & Bland, 2002). It's unethical to let the patients suffer from pain without adequate efforts to provide high-quality treatment (Stegman, 2001; Ferrell, 2005; Gunningberg & Idvall, 2007). Poorly controlled POP induces physiological and psychological harmful effects on the patients. These effects include impaired wound recovery, increased metabolic rate and cardiac output, impaired insulin response, increased production of cortisol, and increased retention of fluids, and the risk of developing chronic pain (Gordon, Dahl, Miaskowski, McCa-berg, Todd & Paice, 2005; Polomano, Dunwoody, Krenzischek & Rathmell, 2008). Additionally, unrelieved pain may causes unnecessary suffering, anxiety, fear, anger, and depression to the patients (Ferrell, 2005; Kehlet, Jensen & Woolf, 2006).

After the assessment has been completed and the intensity of POP has been determined, the surgical patient needs to receive treatment in a timely manner. The ultimate goal of pain treatment is to relieve pain, and the pharmacological intervention is the right place to start (Kehlet et al, 2006, Smeltzer & Bare, 2008).

The pharmacologic pain relief medications are classified into non-opioids, opioids, and adjuvants (Laccetti & Kazanowski, 2009). Non-opioid pain medications are non-narcotics analgesics such as acetaminophen and nonsteroidal anti-inflammatories (NSAIDs). Opioids are the narcotics medications which give total relief of pain if they were given appropriately. Adjuvant analgesics are medications whose primary indication is not for pain management but which have demonstrated analgesic effects such as the use of tricyclic antidepressants and anticonvulsants. Many international agencies and associations set guidelines and standards for the treatment of POP of adult patients. Examples of these guidelines are those of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and the American Pain Society (APS) practice guidelines (APS, 1995; Devine et al., 1999; Curtiss, 2001; Stegman, 2001; JCAHO, 2003; American Pain Society, 2005; Gordon et al, 2005). Nevertheless, there are basic pain management principles that all the proposed guidelines have been agreed upon. These can be summarized into the following points:

- The patient is the authority on his or her own pain.
- The health professional should always believe the patient's assessment of his own pain.
- Pain is best treated before reaching a severe level. This can be detected by routine frequent assessments of pain, and not to rely on vital signs to determine its severity.
- The use of intravenous medications for treating acute POP, and to avoid intramuscular medications.
- Acute POP should be treated with opioids as the initial choice of analgesic, and to be administered on a scheduled basis (regular) rather than on an as needed basis.
- Physical dependence differs from addiction. Addiction is primarily a psychological problem and is extremely rare. Less than 1% of patients develop addiction.

- Patients experiencing continued pain may exhibit anxiety and drug-seeking behavior. These behaviors disappear once the pain is relieved.
- Patients who have used opioids regularly for approximately 7 days or more are considered opioid-tolerant and will require higher doses for acute POP control.
- There is no maximum or ceiling dose for analgesia with opioids.
- Administration of Naloxone should only be used in emergency situations and for unresponsive patients
- It is advisable to use equianalgesics to change from one opioid to another or from one route of administration to another.
- Side effects of opioids should be managed rather than discontinued using the analgesics in a patient with severe pain.
- Commitment to the ethical issues related to the care for patients with POP. These include: assuring patients' personal privacy, respect their belief system, attending to their needs, believe them when they report pain, provide timely and appropriate interventions to relieve pain (Ferrell, 2005).
- A placebo use in POP is unethical and may destroy the trust relationship between the health care provider and the patient (Tucker, 2001; Cahana, 2007).

Although analgesics are the foundation of POP relief, most pain is best treated with a combination of analgesic and non-drug approaches (Dolin et al, 2002). Non-pharmacologic strategies to pain management can enhance comfort, promote sleep and enhance the quality of life (McCaffery, 2002). Such strategies may include: altering the patient's environment, distraction, cutaneous stimulation, massage, acupuncture, heat and cold application, biofeedback, therapeutic touch, hypnosis, and education (Lewis et al, 2005).

Documentation of Postoperative Pain

It has been suggested that the key issue of postoperative pain management (POPM) strategies is to "make the pain visible". This can be done by accurate pain assessment documentation, as well as monitoring the efficacy of pain treatment and the documentation should also include the patient's satisfaction (Warrèn Stomberg & Haljamäe, 2003). For the safety of the patients, documenting daily nursing care in patients' records is vital (Ehrenberg, 2001). The primary purpose of documentation is to communicate patient's care among health team members and to provide legal evidence of the delivered care (Gordon, et al, 2005). Postoperative pain assessment and management should be documented routinely in a systematic format. It can be documented as part of the vital signs record form (Merboth & Barnason, 2000; Chanvej, Kovitwanawong & Vorakul, 2004).

The content of the documentation consists of information about the patients' condition, his or her responses to illness, and the care that is provided. The ultimate purpose is promotion of the quality of care (Harkreader & Hogan, 2004). Additional documentation of patient's pain history, clinical problems, treatment, and follow-up actions are needed to improve practice and research (Dalton, Carlson, Blau, Lindley, Greer &

Youngblood, 2001). The nurse is responsible for the assessment, analysis, planning, implementation and evaluation of patient's nursing care. In 1991, the Committee on Quality Assurance Standards of the Acute Pain Service (APS) developed quality assurance standards for relief of acute pain. Guidelines on Acute Pain Management Standards emphasized that pain should be assessed and documented on admission, after pain-producing procedures, new complaints of pain, routinely, and at regular intervals that depend on the severity of pain. The documentation should include all assessment and management measures in addition to the patients' responses to pain and pain management (American Pain Society, 1995).

In 2000, the American Nurses Association adopted the nursing process as a formalized systematic approach to providing and documenting patient care. As they mentioned that documentation should include information about the status of the patient, nursing diagnoses and interventions, expected patient outcomes, and evaluation of the patient's response to perioperative nursing care (Smeltzer & Bare, 2004). In addition, the JCAHO suggested that the documentation in an educational situation should include the patient's physical, cognitive, cultural, social and economic status and the method that the patient wishes to learn and his/her readiness to learn (Cohen, Easley & Ellis, 2003; JCAHO, 2003).

Nurses are also responsible for documentation of POP assessment and management. Unfortunately, previous studies showed that nurses' documentation of assessment, interventions, and treatment outcomes were inconsistent and infrequent (De Rond, DeWit, Van Dam & Muller, 2000; Dalton et al, 2001). Manias (2003) conducted a study in which nurses' notes in 100 patients' records of the postoperative period were audited. The study showed that nurses documented inadequately in four major areas: pain assessment, use of pharmacological intervention, use of non-pharmacological interventions, and outcome of interventions. Dalton et al (2001) audited 787 patients' records to evaluate the documentation of care provided by health professionals including nurses, physicians and pharmacists who participated in an educational programme. The results revealed that there was inconsistency and infrequency in documenting pain assessment and treatment. They suggested that health team staff should take the responsibility in providing detailed documentation of pain history, treatment and responses, and that pain documentation should be supported by an administrative standard.

A study by Chanvej et al (2004) audited 425 patients' records to evaluate the quality of POP documentation in the first 72 hours postoperatively. The study revealed that documentation of pain both before and after giving analgesics was scarce; pain assessment items were documented inconsistently and were below acceptable standards. Similar findings were reported in a qualitative descriptive study. Briggs and Dean (1998) analyzed the nursing documentation of POPM in an orthopaedic directorate of a large teaching hospital in the north of England. Sixty-five patients were interviewed post-operatively about their pain experience, and pain scores were recorded. Findings indicated that individual assessment of pain was poorly documented, and the nurses' scores of the patient's POP differed from the patients' reports. Additionally, interventions to help the patients to cope with night time pain were rarely documented. The

researchers recommended that there was a need to incorporate the pain documentation as part of the vital signs charts.

Idvall and Ehrenberg (2002) described the nursing documentation of POPM and the nurses' perception of the records in Sweden. The researchers audited 172 patients' charts and found that there was inadequacy in content and in the comprehensiveness of documenting POPM, since only 10% of the nurses documented a systematic assessment using pain assessment instruments and no records were found that included nursing diagnosis or goals concerning pain management. In most of the record, nurses documented patients' self reported signs such as the pain location (50%) and words that described the pain character such as tension, squeezing, sore, dull, and sharp. The researchers recommended that the nurses should agree on the set of data needed in recording and documenting POPM. Many studies considered auditing the documentation system of the POP as an indicator for the application JCAHO standards in the hospital setting. For example, Cohen et al (2003) reviewed the application of JCAHO pain management standard in five hospitals of 117 charts in USA. They found that pain assessment and pain management were not documented for most of the patients and only 53% of inpatients charts recorded pain intensity. Forty four percent of the charts included documentation of reassessment after treatment. Another example was Eder, Sloan and Todd's (2003) study where 302 patients' records were retrospectively surveyed to evaluate the nurses' and physicians' documentation of patient pain in the emergency department according to the JCAHO. Although 94% of the charts reported initial pain assessment, a pain scale was used only in 23% of the records.

In an attempt to evaluate the adequacy of database documentation of POP management of acute pain service (APS) on surgical wards, Warrèn Stomberg, Lorentzen, Joelsoon, Lindquist & Haljamäe (2003) analyzed database information of 381 charts to evaluate the quality of POPM documentation. They found that only 58% of the data charts were properly completed and entered into the database. Also, the database documentation routines were not found to function optimally.

The lack of documentation of POPM as reported by many studies has been found to contribute to poor quality of nursing care. In Jordan, the development of written nursing documentation in general has been slow, and only through the last decade nurses have begun to show concerns related to the assessment and documentation of pain. Yet, no studies have been found in the literature describe the status of nursing documentation of POP in Jordan. In addition, from the author's personal clinical experience, she has found that the documentation system should be more optimally developed and the surgical nurses are still relying on the physicians in reporting the patients' pain. Nurses' notes in the Jordanian surgical wards are varying from one hospital to another, but generally are very brief, and do not reflect the assessment and interventions measures performed to patients who are in pain.

Nurses' Knowledge and Attitudes toward POP Management

The ethical responsibility for pain management, which nurses must have, is a crucial part in handling the patient suffering from pain (Stegman, 2001; Innis, Bikaunieks, Petryshen, Zellermeier & Ciccarella, 2004). However, this could be influenced by

the nurses' perception, knowledge and attitude toward pain and its management. Despite the advancement of pain management modalities, many patients continue to suffer unnecessarily (Gordon, et al, 2005; Horner, Hanson, Wood, Silver & Reynolds, 2005; Solman, et al, 2005, Solman, et al, 2006). This might be due to lack of nurses' knowledge or related to their negative attitudes in dealing with the patients' complaints of pain. Numerous studies have described nurses' lack of knowledge to manage pain effectively. Some of these studies described nurses' lack of knowledge in terms of assessment and evaluation of pain, also in relation to opioid use and their side effects, especially concerning addiction (McCaffery & Pasero, 2001; Green & Tait, 2002 ; Broekmans et al, 2004; Chanvej et al, 2004; Innis, et al, 2004; Ponte & Johnson-Tribino, 2005). Other studies have addressed nurses' attitudes toward pain management. In this study, attitudes are defined as "mental and neural representations, organized through experience, exerting a directive or dynamic influence on behavior" (Breckler and Wiggins, 1992, p. 409). Attitudes are unconscious motivations for actions and reaction in life that either be reinforced or altered by experience. Attitude change is influenced by the person's beliefs system, and people hold positive or negative beliefs about an object that determine their attitudes toward it (Bell, 2000). Many studies indicated that nurses tended to underestimate their patients' pain intensity, and under-administer analgesics (Mrozek & Stehle, 2001; Bird & Wallis, 2002; Chung & Lui, 2003; Manias, 2003; Dihle, Bjölseth & Helseth, 2006).

Unfortunately, there are still many misconceptions concerning understanding POP and its management. One of these misconceptions is that the health teams are considered the authority not the patient on the existence and the nature of the patient's sensation of pain. Also, the nurses' personal values and intuition determine if the patient's reports of pain is true or not, and they considered pain is not real if no physical cause is identified. Broekmans et al. (2004) studied 350 nurses' attitudes toward pain management with opioids in Belgium using a structured questionnaire. The results revealed that nurses had negative attitudes towards the use of opioids during a diagnostic phase and the risk of possible addiction. These negative attitudes can hinder adequate pain treatment. A phenomenological study by Klopper, Anderson, Mikkinen, Ohlsson, and Sjöström (2006) aimed to describe strategies that the nurses use to assess the patient's acute pain. A sample of 12 registered nurses (RNs) were interviewed and asked to estimate pain intensity using the VAS. The study revealed that nurses relied on the patient's appearance in assessing the pain; some used the facial expressions while others used their observation. In addition, nurses were using their past experiences to judge the patients' response to pain, and were predicting the patients' pain intensity according to the type of operations not depending on patients' statements. Moreover, nurses underestimated the intensity of their patient's pain. Idvall (2004) conducted a study in Sweden that described the nurses' assessment of whether it was realistic to carry out good quality of care in POPM. A sample of 63 nurses answered two questionnaires developed by the researcher. The results showed that there was inconsistency between what the nurses considered as realistic to carry out and what they actually thought they had effectuated for the patients.

Postoperative Pain Management Programs

Postoperative pain management should be based on a well-organized health care sys-

tem that emphasizes consistent nursing education regarding proper pain management techniques (Twycross, 2002; Warrén Stomberg & Haljamäe, 2003). Education to support nurses with knowledge should be included in the hospitals' quality improvement programs (Gordon et al, 2005). Results of recent studies in the field of pain control showed that the use of educational programs to enhance the nurses' knowledge about POPM, significantly improved POP control (Innis, 2004; Ravaud, Keita, Porcher, Durand-Stocco, Desmots & Mantz, 2004; Horner et al, 2005). Also, many studies highlighted the effects of educating nurses on the delivery of high quality nursing care for postoperative patients. For example, Hansson, Fridlund, & Hallström (2006) evaluated the effects of an educational program on pain management routines. This study results revealed that nurses' assessment of pain with rating scales increased after the intervention, and their knowledge and management routines had improved.

Patients' satisfaction with the POP management techniques is also important to evaluate. Comley and DeMeyer (2001) evaluated patients' satisfaction with pain management before and after a continuous quality improvement project in a large university medical center. The results revealed that more than 90% of patients reported being satisfied with pain management. A similar finding was found in Yimyaem et al. (2006) study which included a sample of 1540 patients undergoing abdominal surgeries.

To conclude the literature review of international and national studies showed that pain control in patients in the surgical setting remains a significant problem in health care. Recognition of the widespread under-treatment of POP has prompted recent corrective efforts from health care professionals throughout the world. Also, studies indicated that nurses still have negative attitudes that stand in the way of delivering a quality of nursing care to patients suffering from POP. Nevertheless, the literature did not convey any information implying that Jordanian nurses holds the same negative attitudes or describe obstacles related to the quality of care regarding POP. Furthermore, there is clear evidence in the literature that nursing education through a well-established pain management program improves patients' satisfaction with the pain services, and consequently improving the quality of nursing care. However, these studies discussed the application of the educational programs in western countries and not in parts of the world from the Middle East. Studies in this thesis took the initiatives of introducing such programs in this un-researched geographical area and the results might be looked at as the starting point for improving nursing care of patients with POP.

AIMS

The overall aims of this thesis was to

- Describe the current nursing postoperative pain assessment and management practices in the surgical wards in Jordan
- Evaluate the effectiveness of implementing a postoperative pain management (POPM) program in improving the Jordanian nurses' POP assessment and management practices in the surgical wards.

The specific aims of the four studies were

1. To describe surgical nurses' experiences in caring for patients with POP (Study I).
2. To describe and compare nursing documentation of pain assessment and management in the first 72 hours postoperatively in the surgical wards (Study II).
3. To evaluate nurses' postoperative pain assessment and documentation practices after the implementation of a postoperative pain management program in surgical wards (Study III).
4. To assess nurses' knowledge of and attitudes toward pain in the surgical wards before and after implementation of a POPM program (Study IV).

CHAPTER II

METHODOLOGY

Theoretical Framework

Intervention research is a problem focused approach that has an educational function, and involves a change intervention that aims at improvement and involvement (Hart & Bond, 1998). This approach was developed to achieve specific goals, such as analyzing health problems in a particular area by health professionals with the aim of improving the service provided. The approach includes doing some baseline measures using questionnaires, auditing tools or other research methods to identify the problem. Decisions are then made to bring about a change that is put into action. Change is the process of making something different from what it was (Sullivan & Decker, 2005). Nurses and nurses' leaders need to believe that changes are necessary to improve patient quality of care (Stringer & Genat, 2004). Once the change has been implemented, the same baseline measures are applied for assessment and conclusions are drawn, accompanied by report writing. The researcher acts as a change agent who works to bring about change. The role of the researcher is to assist participants to take control of and change their own work.

Kurt Lewin (1951) offered an extensive explanation of human behavior through his Force-Field Model of Change. The model provided a framework for planning to introduce change into the work place of nurses working with patients suffering from pain in the post-surgical period. Lewin's operational framework for change provided an understanding of individual and group behavior as determined by motivation and intention. Lewin described three steps when describing the process of change.

The first step in Lewin's theory is unfreezing the current level which involves the identification of the current need or problem. This step focuses on realizing that change is necessary and valuable to the success of the organization through what he called identifying the driving forces for the change and the restraining forces that stand against change. The second step is changing or moving to the new level, which involves construction of a detailed plan for implementing the change. The final step is freezing the new level (refreezing). In this step the change is established and should be maintained or stabilized.

Application of Lewin's Force-Field Model

It would have been difficult to introduce an educational program for nurses and measure its effectiveness without investigating the current status of the POP assessment and management. It would also have been difficult to draw an overall picture of what was happening in the surgical wards regarding the management of POP without studying in depth the surgical nurses' experiences in caring for the patients with POP and asking the participants to share their experiences. To identify the problem that needs to be solved, the researchers gathered a baseline data through interviewing experi-

enced surgical nurses caring for patients with POP in order to have a deep understanding of the current situation of POP assessment and management practices (Study I). Another approach of assessing this current status was achieved by auditing nursing documentation of POP (Study II).

According to Lewin (1951), in order to plan for change, strategies for change should aim at increasing driving forces and decreasing restraining forces. Figure 2 demonstrates the framework of the thesis using the three stages proposed by Lewin's Force-Field Model Communication with the involved nursing management was essential to induce change. Therefore, formal approval to conduct the studies was obtained from the nursing administration after a detailed explanation of the process of change which includes the implementation of the POPM program that aimed to educate nurses about the care of patients with POP. Accordingly, all nurses working in the selected wards for intervention were permitted to participate in applying the POPM program in their working hours. This provided a driving force for the nurses to implement change, and helped to reduce the barriers that may stand in its way of application. The researcher needed to gain the participants' awareness for the need for change (Marriner, 2004). The University of Jordan played a vital role in adding a driving force for the implementation of the POPM program by providing all the necessary funding process.

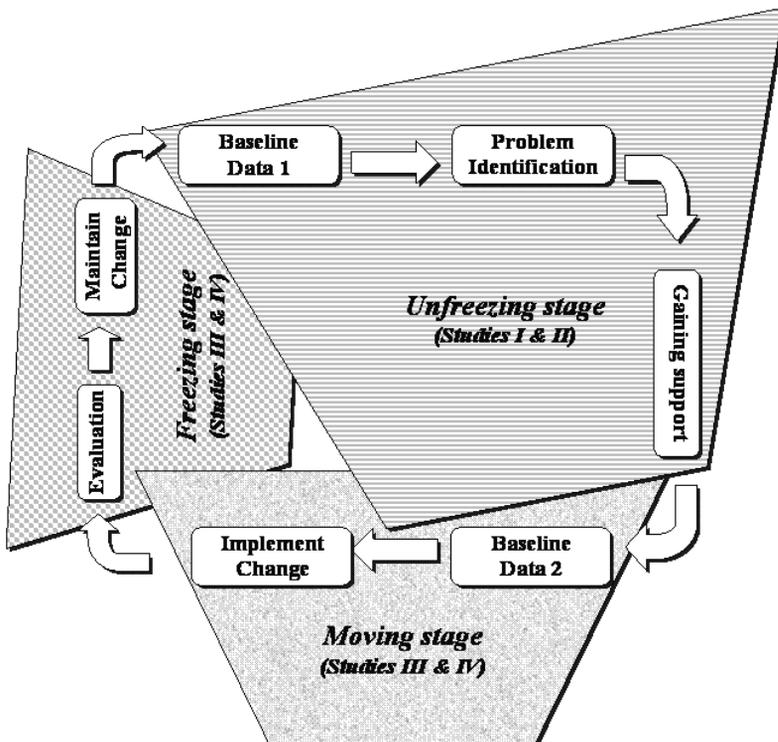


Figure 2: Application of Lewin's Force-Field Model as thesis theoretical background

Once the change was recognized and assimilated by the nursing management and the staff, the process of implementing the intervention program was carried out (Studies III, and IV). Baseline data to assess the current status of POP assessment and management in selected surgical wards were obtained using different tools (Study III and IV). Three months later, the educational program was implemented aimed at improving the nursing care of postoperative patients; the focus was on the change in the assessment and documentation process/ practices and the change in the nurses' knowledge of and attitudes toward POP. The program involved workshop activities and follow up of their practice at their place of work in order to integrate the new behavior into their everyday routines. Detailed description of the program will be discussed in the methods section. During the moving phase, the researcher should do all that is possible to work to build trust and recruit as many others as possible. The more ownership there is in the change, the more likely the change will be adopted (Rebecca & Patronis, 2007). It was important in this phase that the nurses were active participants in the implementation process; this induced personal commitment to the change process and more likely supported a successful implementation. Lewin believed that the most effective way of change is to involve participants in solving their own problems with the assistance, guidance, and support from their leaders (Marriner, 2004). Accordingly, the researchers involved the hospital administration in the planning and organizing of the educational program. Supervisors in the wards attended the program and actively participated in the workshops.

The final step in the application of Lewin's theory is the Freezing stage. Here the implementation of the change through the POPM program were accomplished and a time for the nurses to integrate what they learned through the program was provided before assessing the change. In this stage, the researchers evaluated the effects of the intervention using the same questionnaire and auditing tools that were used in obtaining the baseline data (Studies III, and IV).

Design

The design for the thesis is divided into qualitative (study I) and quantitative designs (Studies II, III, and IV). Although the quantitative paradigm dominates this thesis, the qualitative study contributed to an understanding of nurses' thoughts and experiences and thus a new dimension which was important for the following studies. Table 1 summarize the research design used for the four studies in the thesis.

The researcher selected the qualitative content analysis method to gain data that would never been derived from the quantitative methods of data collection. Latent content analysis attempting to define the underlying meaning of the texts (Graneheim and Lundman, 2004) was selected to interpret the data that emerged from the texts.

Although the study did not follow a specific philosophical background, it was inspired by the hermeneutic philosophy. Hermeneutic inquiry seeks to describe human phenomena to achieve understanding of experiences through interpretation of texts (Moules, 2002). Hermeneutics provides approaches with which to express the knowledge embedded in nursing practice, and assumes that humans experience the world through language that provides both understanding and knowledge (Dowling, 2003).

The aim of hermeneutic inquiry is to describe the phenomena as experienced in the life by giving voice to human experience just as it is, often through identification of the central themes (Spezial & Carpenter, 2003; Polit & Beck, 2006). Although hermeneutics does not give a method, it does not ask that we proceed without any guidance. Gadamer (1998) suggested that it is not possible to determine a way to proceed without being guided by the topic. At the beginning, it is necessary to intentionally allow the topic to guide the direction of the work character. Subjective phenomena unique to the practice of professional nursing need investigative approaches suitable to their unique nature that add an important dimension in understanding the experience of caring for patients having POP.

Table 1. Research Designs, Data Collection Procedure, Informants, and Data Analysis

Study	Design	Data collection procedure	The sample	Data analysis
I	Prospective descriptive	Face to face interviews with nurses	12 registered nurses working at different surgical wards in Jordan	Qualitative content analysis using Kvale's method (1996)
II	Retrospective, descriptive	Auditing patients' records using three tools: –The PAAT. –NANDA form for the characteristics of acute pain. –Comprehensiveness of nursing records tool.	322 patients' records in six Jordanian hospitals over six-month period.	Descriptive statistics. Pair samples test.
III	Quasi-experimental Descriptive, comparative	–Face to face interviews with patients, NRS scores analysis, Auditing patients' records using the PAAT.	– 240 patients with postoperative pain. – 65 registered nurses at two surgical wards. – 240 patients' records.	Descriptive statistics, two sample t-test, and one sample t- test.
IV	Quasi-experimental Descriptive, comparative	–Assessment questionnaire for nurses, and auditing patients' records using Comprehensive-ness of nursing records tool.	– 65 registered nurses at two surgical wards. – 240 patients' records.	Descriptive statistics one sample t- test. Kruskal-Wallis test.

A retrospective quantitative design was used in study II to collect data on the documentation system and strategies of the postoperative pain assessment and management in the surgical wards in Jordan. For studies III and IV, a postoperative pain management program for nurses was implemented. The program was evaluated by means of a quasi-experimental design with a nonequivalent control group where the control group and the intervention group were not drawn from the same population. A pre-post intervention design was used to test the effect of the POP management program on the nursing knowledge of POP and their attitude toward it.

The Sampling

In study I, a purposive sampling technique ensuring variation of participants' gender age and experiences as nurses was used (Patton, 2002). Data were obtained from 12 registered nurses working in surgical wards at four hospitals in Jordan. The participants' number was not pre-determined before the initiation of the study, but rather after performing the primary analysis of data when no more new contents were emerged from the interviews and when the collected data was assessed to be rich of information. The researchers focused on choosing participants with various experiences and who were meeting the following criteria:

- Registered nurses with a minimum of two years experience in the surgical ward.
- Willing to describe their experiences.
- Varied in gender, surgical ward experiences, level of education, held nursing positions, and from different hospitals.

The researcher contacted a total of 35 RNs who met the inclusion criteria. Preliminary contacts with the RNs were carried out to determine the nurses' willingness to share their experiences in caring for patients with POP pain. The final sample included 12 participants from different hospitals who were keen to participate in the study and signed the informed consent. Some demographic data of the participants are presented in Table 2.

Table 2. Demographic and background data of participants (N=12)

Variable	No. (%)	Range (M)
Gender		
Female	8 (66.7)	
Male	4 (33.3)	
Age (years)		24-53 (37.2)
20-29	2 (16.7)	
30-39	6 (50)	
40-49	3 (25)	
50 and above	1 (8.3)	
Education		
Diploma	2 (16.7)	
Bachelor's degree	9 (75)	
Master's degree	1 (8.3)	
Experience (years)		2-18 (9.5)
2-5	4 (33.3)	
6-9	3 (25)	
10-13	1 (8.3)	
14-17	3 (25)	
18 and above	1 (8.3)	
Position		
supervisor nurse	3 (25.0)	
head nurse	2 (16.7)	
staff nurse	7 (58.3)	

To evaluate POP assessment and management documentation in the first 72 hours in surgical wards, six hospitals of large size (250 to 400 beds) in Jordan were conveniently assigned to be audited (study II). The patients' records were randomly sampled for the study using the systematic random sampling technique. The inclusion criteria for the selection of patients whose records to be reviewed were: the patients who were

15 years of age and above (adult patients at the Jordanian hospitals are defined as patients whose age are 15-16 years and above), admitted to the hospital after surgery, and stayed as inpatient in the surgical ward for at least three days postoperatively. Patients who received pharmacological interventions for chronic pain management as these patients' pain may not be classified as acute, and patients with neurological, cancer, burn, and skin procedures were excluded from the study. Consequently, a total of 322 patients' records were audited in six-month period.

In study III and IV two patients' groups from two surgical wards at a university hospital in Jordan were selected to implement the POPM program for nurses, one as a control group (120 patients) and the other as intervention group (120 patients). All consecutively admitted patients to the two selected wards were screened for inclusion until a number of 240 patients was reached. Although the majority of patients (65%) were male, there were no significant differences in patients' characteristics between the control group and the intervention group such as the mean age, the type of surgery, and the type of anesthesia. The description of the patients in both groups is presented in Table 3.

Table 3. Demographic profile of patients in the control group and the intervention group

Patients' Demographic	Control group	Intervention group	Total
	N (%)	N (%)	N (%)
– Age (Mean, SD)	41.9, 16.1	42.8, 14.5	42.4, 15.3
17-20	8 (6.7)	4 (3.3)	12 (5)
21-30	32 (26.7)	20 (16.7)	52 (21.7)
31-40	21 (17.5)	38 (31.7)	59 (24.6)
41-50	19 (15.8)	24 (20)	43 (17.9)
51-60	24 (20)	20 (16.6)	44 (18.3)
61-70	10 (8.3)	8 (6.7)	18 (7.5)
≥ 71	6 (5)	6 (5)	12 (5)
– Gender			
Male	88 (73.3)	68 (56.7)	156 (65)
Female	32 (26.7)	52 (43.3)	84 (35)
– Type of surgery			
Intra-abdominal	33 (27.5)	36 (30)	69 (28.8)
Renal	21(17.5)	25 (20.8)	46 (19.2)
Orthopedic	38 (31.7)	39 (32.6)	77 (32.1)
ENT	12 (10)	10 (8.3)	22 (9.1)
Intra-thoracic	16 (13.3)	10 (8.3)	26 (10.8)
– Types of anesthesia			
General	101 (84.2)	98 (81.7)	199 (82.9)
Regional	19 (15.8)	22 (18.3)	41(17.1)
Total	120 (100)	120 (100)	240 (100)

Fortunately, all registered nurses (65 nurses) employed in the two surgical wards accepted to participate in the study after explanation of the purpose of the study and understanding that the nursing administration approved to implement the program during their usual working days. There were no significant differences in nurses' characteristics between the two surgical wards regarding the nurses' age, level of education or years of experience. See Table 4 for the characteristics of the participating nurses.

Table 4. Participating registered nurses' gender, age, education level and years of experiences as nurses (N = 65)

Nurses' Demographic	Nurses' Gender		Total No (%)
	Male No (%)	Female No (%)	
Nurses' Age (Mean= 37 years)			
20-29	11 (16.9)	9 (13.9)	20 (30.8)
30-39	6 (9.2)	13 (20)	19 (29.2)
40-49	2 (3.1)	18 (27.7)	20 (30.8)
≥ 50	1 (1.5)	5 (7.7)	6 (9.2)
Level of Education			
Associate degree	8 (12.3)	8 (12.3)	16 (24.6)
BSc. degree	11 (16.9)	34 (52.3)	45 (69.2)
Master degree	1 (1.6)	3 (4.6)	4 (6.2)
Years of Experience (Mean= 13 years)			
<1	2 (3.1)	3 (4.6)	5 (7.7)
1-5	8 (12.3)	6 (9.3)	14 (21.6)
6-10	3 (4.6)	8 (12.3)	11 (16.9)
11-15	4 (6.2)	7 (10.7)	11 (16.9)
15-20	1 (1.6)	9 (13.8)	10 (15.4)
>20	2 (3.1)	12 (18.4)	14 (21.5)
Total	20(30.8)	45(69.2)	65(100)

The Settings

The health care system in Jordan operates through health insurance schemes (Ministry of Health, 2008). The schemes run through two main sectors. Firstly, the private sector which covers about one third of the population and has 60 hospitals and 23 primary health care facilities distributed throughout the country (Department of Statistics, 2007). Secondly, the public health services which are provided by the collaboration of the Ministry of Health, the Royal Medical Services, and two university hospitals (the Jordan University Hospital (JUH) and the King Abdullah Hospital) (Ministry of Health, 2008). This sector provides services in 56 governmental hospitals with 12,000 beds capacity where the JUH provides around 5% of it.

The JUH pharmacy and therapeutic committee carries the responsibility of developing policies, plans for medication selection. The physician has the responsibility for prescribing and ordering the analgesics as part of the treatment plan. Medication administration is the responsibility of the nursing staff, under the supervision of chief nursing officer. In some cases physicians administer drugs such as anesthetic drugs. The function of monitoring the effect of drugs on the patient is the responsibility of both the physicians and nurses. Dangerous and controlled drugs are under the control of the dangerous and narcotic drugs handling law Number 11/1988. They require spe-

cific procedures to their reception, storage, dispensing and wastage. They are securely double locked within a well constructed storage area and under the control of licensed pharmacist. Only licensed physicians are permitted to prescribing these drugs and only registered nurses are allowed to prepare and administer them for the patients (JUH Records system, 2008).

In study III and IV, the two general surgical wards with 100 beds capacity at JUH were selected to implement the POPM program for nurses. This hospital formed a suitable place to implement the POPM because; first it's one of the largest hospitals in Jordan that performs an average of 316 general surgeries per month (JUH Record system, 2008). Second, the JUH is the main teaching hospital in Jordan and sets an example for the health care students of all educational institutions in the country. Third, the JUH administration is currently seeking for international accreditation and has the intention to improve the quality of care provided in the surgical wards.

The surgical wards at JUH were dedicated to provide care for patients underwent general surgical procedures and interventions mainly orthopedic and intra-abdominal surgeries. Routine care in these wards was similar and did not follow specific protocol regarding pain assessment and management, and nurses' generally treat patients' pain by providing the prescribed analgesia. Prescription of analgesia was individualized and depending on the attending surgeon. Moreover, there were no documentation standards and pain assessment tools have not been used by the health care professionals.

Data Collection

Interviews (Study I)

To explore the surgical nurses' experience in caring for patients with POP, data were collected by tape-recorded interviews with the participating nurses. The researcher conducted all the interviews, at the location of participants' choice, each interview lasted about one hour. Following the interviews, the interviewer immediately transcribed the tape recording, and translated the text into English. Back translations were also done, and translated texts were reviewed by English speaking editor to ensure the accuracy of the translations. The opening question for each interview was "Can you tell me about a situation with a patient you cared for and who was complaining of POP?" Subsequent questions were used to clarify and further explore meanings in the dialogue.

Patients' records audit (Studies II, III, and IV)

The records review was performed using three audit instruments:

1. Pain and Anxiety Audit Tool (PAAT) (Studies II, III)

The PAAT was developed by Manias (2003) to examine prescribing and administering activities for sedative and analgesic medication in postoperative patients and to describe nurses' documentation practices for pain management in nursing notes. This tool is divided into three sections. Section one contains questions about the patients' demographic profile, including age, diagnosis, gender, and current surgery. Section

two was designed to collect information about the patients' infusions, and orders of analgesic and sedative medications. Section three was designed to request details about the nurses' documentation of pain management in the nurses' notes. Since section two of the tool was not congruent with the purpose of the study II and III, only section one and three were used to collect data from the patients' records. Two research assistants audited a random sample of 32 (10%) patients' records (study II), and the agreement was 96%.

2. North American Nursing Diagnosis Association (NANDA) form for the characteristics of acute pain (study II)

The records were reviewed by using the NANDA "characteristics of acute pain" (2001). The validated characteristics of acute pain according proposed by NANDA are: patients' self-report of pain, changes in pulse rate, blood pressure and respiratory pattern, restlessness, sweating, grimacing, increased muscle tension, whining, whimpering and crying. A random sample of 32 (10%) of patients records were audited to test inter-rater reliability between the data collectors were done and an agreement for the characteristics was 100%.

3. Comprehensiveness measuring instrument (Studies II, and IV)

Comprehensiveness of nursing records of pain was assessed using an instrument developed by Ehnfors & Smedby (1993). Notes on the pain management process were scored on a five-point scale, with scoring based on the following criteria:

1. The problem is described or interventions planned or have been implemented.
2. The problem is described and interventions are planned or have been implemented.
3. The problem is described and interventions are planned or have been implemented. The nursing outcome is noted.
4. The problem is described; interventions are planned and have been implemented. The nursing outcome is noted.
5. All steps comprising the nursing process are recorded. The recording is of relevance to nursing.

A score of 5 indicates optimal comprehensiveness, covering the entire nursing process. A score of three is considered to be the minimum score for satisfactory documentation, encompassing problem description, intervention and outcome. Two research assistants audited a random sample of 32 (10%) patients' records, and the agreement was 94%.

In study II, over the 6-month period (from August 2006 to February 2007) the patients' records were audited using the three mentioned instruments. Data were collected from the day of the operation and continued for 72 hours following the procedure. The records were reviewed by three research assistants who were not involved in the documentation of these records and were not employed at the selected hospitals. Each research assistant took training for two weeks by the researcher on how to audit records using the tools of the study. To ensure that they understood the tools, the researcher (M. A) participated in the data collection procedure for the first hospital,

and checked each item in the tools for accuracy and consistency. The research assistants recorded information collected from the nurses' notes relating to assessment of patient's pain, the use of an assessment tool, and the use of pharmacological and non-pharmacological interventions for pain. The nursing notes were examined on the first three days following the operation. It was estimated that nurses would make at least one nursing note relating to the patients' pain every eight hours shift. If more than one nursing note was made on the same day, the notes were considered as one note for the purpose of this study. For studies III and IV patients' records were audited before and after the implementation of the POP program.

Assessment of patients' communication with nurses and their satisfaction (Study III)

In study III data were collected during the three months period before the implementation of POPM program and three months after the implementation of the program. Before implementation of the POPM program patients from the control group were interviewed in the third postoperative day. The focus of the interview was to assess the patients' communication about pain with the nurses and their satisfaction about nurses' intervention using a simple questionnaire designed by De Rond, de Wit, Van Dam and Muller (2000). It included the following questions:

1. Did you discuss pain with nurses?
2. Did you receive information about pain from nurses?
3. Did you receive your medications in a timely manner?
4. Were you satisfied with how well your pain was controlled?
5. How do you rate your satisfaction of pain management service? (0 = very unsatisfied, 1 = moderately satisfied, 2 = very satisfied)
6. How do you evaluate the quality of the information provided? (4 = very good, 3 = good, 2 = fair, 1 = not good)

Evaluation of the quality of nurses' assessment (Study III)

In order to evaluate the quality of the nurses' pain assessment, the main author and two trained research assistants assessed the intensity of POP for patients in the day of surgery and the third day after surgery. The assessment was based on a numerical rating scale (NRS) from 0 (no pain) to 10 (greatest pain). After that, the attending nurses then were asked to estimate the patient's present pain intensity using the same scale. The nurses' assessment was evaluated by comparing the mean difference between the researchers' pain intensity scores and the nurses' rating scores, where the researchers' assessment was set to be the reference point for accurate rating. The nurses' assessment was considered to be accurate if their rating scores were identical or ranged between +1 and -1 with the researchers' scores. Nurses' pain rating scores that were 1 point higher or lower than the researchers' pain scores were considered overestimations or underestimations of patients' pain intensity, respectively.

Nurses' knowledge and attitude questionnaire (Study IV)

In study IV, a 21 items questionnaire developed by Zanolin, Visentin, Trentin, Sariani, Brugnonli and Grassi (2007) was used to test the nurses' knowledge of and their

attitudes toward pain. This questionnaire comprised 21 items where the respondents were asked to reply according to five-point Likert scales ranging from “strongly agree” to “strongly disagree.” The choice of the items was inspired by the survey of Lebovits et al (1997), and was modified by the Zalonin et al. (2007). Before implementation of POP management program, all nurses in the two surgical wards were instructed to respond to the questionnaire items according to a five-point Likert scale ranging from “strongly agree” to “strongly disagree”. They were also instructed to complete the questionnaire quickly without referring to any text books. Three months after the implementation of the POPM program, all nurses in the two surgical wards answered the same questionnaire used in the pre-intervention phase.

The POP Management Program (Studies III and IV)

The decision was taken to establish a pain management education program which aimed at improving nurses’ knowledge and attitudes toward POPM, followed by proper evaluation of the outcomes. It was anticipated that there would be some concerns regarding the change process from the staff nurses and the nursing administration. Attempts were made to identify their concerns before the establishment of the educational program.

Accordingly, the RNs and the administrators were approached separately, to discuss the benefits and the advantages of the program for patients’ care and for the improvement of practice. The administrators were reassured that the costs of conducting change will be covered by the researcher (M. A), and the RNs were reassured about the administration support and permission to implement the program during their working hours were gained. This step is important to enable the involvement of all recruited RNs in the selected surgical wards, and to encourage them to implement the POPM program. However, this formed a problem of gathering all RNs in order to apply the educational program because of shift work patterns and family commitments. To overcome this problem, many educational sessions were conducted to facilitate the RNs attendance according to their shifts and their preference. Additionally, nurses who attended the educational sessions in their own time were paid according to their daily salary.

An intervention in the form of a POPM program that was directed toward teaching nurses working in surgical wards about pain, its assessment, and the use of pain scales was implemented for three months. In study III, the nurses’ POP assessment and management practices were compared before and after the intervention of the program, while their knowledge of and attitudes toward pain before and after the intervention of the program were explored in study IV. The program consisted of the following steps:

- All registered nurses in the two selected surgical wards joined a six hours in-service educational program. The program focused on teaching nurses the current POP assessment, treatment with analgesics, the use of non-pharmacological pain treatments, and pain documentation.
- Nurses then were asked to implement what they learnt in the educational program while caring for patients in the surgical wards.

- Nurses were asked to rate the patients' intensity of pain on a NRS, and the researcher provided the ward with a sufficient number of scales to be used when needed.
- A pocket-sized "Postoperative Pain Assessment and Management" guide designed by the authors were handed out to all nurses in the two wards, as well as to other interested healthcare providers.
- A Compact Disk that contained selected recent full-text research articles and information addressing POPM issues was handed out to each registered nurse in the selected wards.
- Posters on pain assessment and management were posted in the wards, to remind nurses to assess patients' pain.
- Two trained research assistants frequently attended rounds on all patients and nurses to ensure implementation of the POPM management and the documentation process.
- The researchers were available on call for any questions or issues raised by nurses when implementing the program.

Data Analysis

Content analysis (Study I)

A qualitative content analysis was done to analyze the texts from the translated interview transcripts. Data analysis followed Kvale's (1996) guidelines for analyzing qualitative data. The interview texts were analyzed in three phases. In the first phase, each interview text was read several times so that the researchers could gain what Kvale referred to as self understanding of the content, and then the whole text was read again and the meaning units were identified and condensed. In the next phase, texts were reread and analyzed based on common sense; that is, they were classified within the nursing context and guided by the purpose of the study. In the third phase, condensed data that contained the same meaning were coded and then sorted as subthemes. Those subthemes that were related to each other were summed into five distinctive themes.

In order to obtain descriptive validity (Shenton, 2004), three researchers, who were the study's authors, analyzed the data independently at each level of the analysis process. After several discussions, the researchers were in agreement about the subthemes and the themes. Weber (1990) emphasized that it is important for the classified data be reliable which means that different researchers should draw the same conclusions regarding the codes, subthemes and themes. Finally, the emerged data were returned to participants to ensure that the subthemes reflected their experiences. The aim of checking the data with the participants is to obtain participants' validation (Horsburgh, 2003).

Statistical analysis (Studies II, III and IV)

Data were analyzed using the Statistical Package for the Social Science for Window (SPSS, version 15). Descriptive statistics (including frequency distributions and measures of central tendency) were used to organize and summarize the data. Results were

recorded as frequencies, percentages, means, and standard deviations. Pair samples test was used to evaluate the differences in nursing documentation amongst the three postoperative days (study II). To determine the effect of the POPM program (study III), two sample t-test was used to compare data from the control group with the intervention group, and one sample t- test was used to evaluate the differences in nursing documentation before and after the implementation of the program. Responses to the 21 questionnaire items were dichotomized to correct/incorrect answers (study IV), and comparison of the mean scores on the questionnaire items between the answers in the pre- and posttest was made using one sample t- test. The non-parametric Kruskal-Wallis test was computed to examine the relationship between nurses' variables (level of education and years of experience) and the nurses' mean scores on the questionnaire. A p-value less than 0.05 was taken to be significant for all the statistical tests.

Ethical Consideration

All the studies had the approval of the research committee board at the University of Jordan. Formal approvals were also obtained from each hospital's administration to carry out the interviews with the nurses and to implement the POP management program to the registered nurses.

Also permission to access patients' records in the selected surgical wards was gained before starting data collection assuring that confidentiality and anonymity were maintained for both the patients and the nurses. Every patient and registered nurse involved in the studies was provided with a clear explanation of the studies and signed an informed consent form. Figure 3 describes the steps of the ethical considerations of the studies.

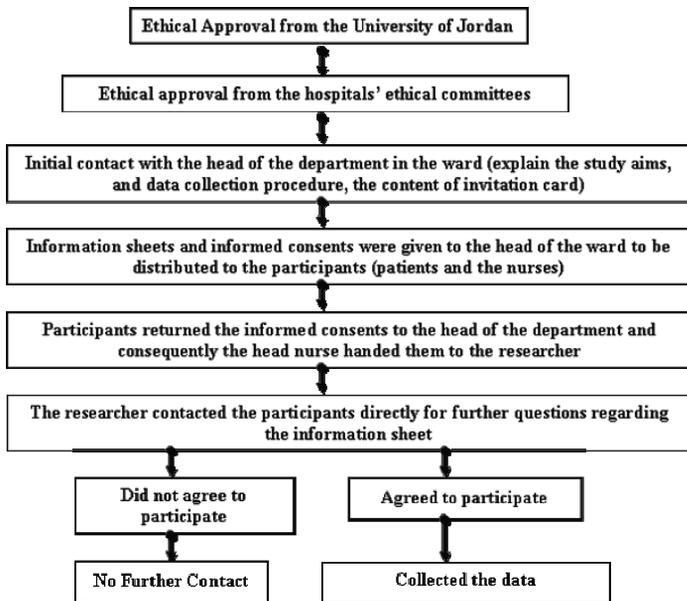


Figure 3: The steps for obtaining the ethical approvals for the four studies

CHAPTER III

FINDINGS

This chapter presents a summary of the findings of the four studies and is presented in a manner that fits the logical sequence of presenting change in the selected surgical ward. In an attempt to apply Lewin's framework, the findings are presented to show the process of change through the identification of the problem, highlight the driving and restraining forces for change, and the effects of implementing the POPM program. Accordingly, the results are divided into two main sections to show the sequence of the thesis process. The first section demonstrates the findings that identify the problems that limit the delivery of best care for patients with POP and exhibit the need for change. The second section demonstrates the findings that illustrate the effects of the implementation of the POPM program.

Identification of the Problem: The Need to Change (Studies I and II)

The findings of the studies I and II serve as scientific proof to be utilized in identification of the problems that contribute to the delivery of quality nursing care for patients having POP. The two studies reflected the existing state of POP management in Jordanian surgical wards. The findings of these studies can form the foundation where the researcher can illuminate the main issues and obstacles in the process of change toward better POP management.

The analysis of the interviews with the surgical nurses' (Study I) revealed that participants faced conditions that enabled them to understand patients' experiences of POP, yet they were unable to practice what they believed as best management. The results of study I, which aimed to describe surgical nurses' experiences in caring for patients with POP, were presented in terms of five themes that emerged from analysis of the texts of the participant's stories (table 5). It could be concluded that POP was not relieved, and there were many conditions within the system prohibited nurses from delivering the ideal nursing care for patients having pain. In addition, findings from Study II revealed that POP documentation is insufficient, nurses tend to document pain less often over time, and that documentation lacks comprehensive plans. These findings indicated "the need to change".

Table 5. The main themes emerged from texts of the participants' stories

The Main Themes
1. Being faced with patients' suffering
2. Being caught between ideals and work conditions
3. Facing neglect and misconceptions
4. Being confronted with families' concerns and hostility
5. Facing the feeling for the necessity to change

Postoperative pain is not relieved

Starting with positive accounts about the nursing care of patients with POP, the first theme emerged from the analysis of texts “being faced with patients’ suffering” mirrored how the participants developed an understanding of the patients’ experience of pain after surgical intervention. They fully described the patients’ responses to POP. They also expressed how they were encountered with patients’ suffering due to pain and their responses when the pain was not relieved. The participants often described the verbal and the nonverbal expressions behaviors of the patients which were explained as indicators of the presence of severe pain and that the patient was under-medicated.

The patient was having severe pain, watching the clock all the time and kept reminding us of the time for the injections.

The participants understood the patients’ behavior while experiencing pain, even when this behavior was manifested as aggression or hostility. However, participants empathized with the patients having POP, and believed that patients have the right to be free from pain. They understood that POP is subjective in its nature, where every patient reacts to it differently.

No patient should suffer from postoperative pain, this is a right that all of us should consider. Pain expression differs from one patient to another and every one respond to the pain drugs differently.

Most participants showed their empathy toward the patients’ feeling of pain by referring to their own experience of POP. They also stated that caring for those patients was derived from their religious beliefs.

I know the feelings of pain after surgery, and how much a person suffers from the pain physically and emotionally, I went through the same situation when I had a surgery five years ago, also our religion and conscious direct us not to ignore the patient’s pain and to remember that God ordered us to perform our work with fidelity.

One important aspect that needs to be emphasized based on the participants’ stories is that their view of the patients’ suffering from pain was because of improper management of pain in the postoperative period. The participants thought that patients’ POP was not totally relieved after the administration of the prescribed analgesia, and they explained the reason that the dose was not enough.

From my experience with the patients in pain, I can assure you that our patients is not having the right dose of analgesia and that explains why they ask for the next injection before its time, and this is not coming from one patient, most of our patients who had surgeries will keep asking us for pain relief.

The restraining conditions within the system

The analysis of the texts disclosed many restraining conditions that the participants thought they hindered their delivery of effective pain management and thus satisfying quality of care. The emerged themes “being caught between ideals and work con-

ditions”, “facing neglect and misconceptions”, and “being confronted with families concerns and hostility” formed the nurses’ perception and explanation of these conditions.

The participants affirmed that the inadequate POP management was linked to a number of constraints. First, the imposed hospitals’ rules and regulations limited the nurses’ role in the administration of medication and following physicians’ orders. The nurses’ were burdened with a heavy workload (i.e. they had to care for a large number of patients in a short time). Also, the nursing administration did not support the nurses’ decisions regarding pain control according to the nurses’ statements.

We have a lot of patients to take care of in our ward, and we follow physicians’ orders in meeting the patient’s needs, we administer analgesia according to their written prescriptions, that’s it. Pain management by nursing staff is very limited.

The nursing administration has some how a passive role regarding our needs. Nurses here are frustrated because they need the power to manage patients the way they learnt and belief it is good for the patient, but this is not happening because our administration does not support us.

The second constraint for the delivery of effective pain management was related to the improper management of POP by the other health care professionals. Physicians disregard the nurses’ capabilities and do not appreciate their work as co-workers but rather as followers. Nurses expressed that the physicians also were unavailable for patients, write improper prescription of analgesics, and hold misconceptions about the use of analgesia and its side effects.

The participants frequently mentioned the health professionals’ use of placebo to manage POP and their unrealistic fears of opioids side effects such as respiratory complications; they also referred to the health professionals’ fears of opioid addiction.

I saw nurses and physicians injecting patients with water in order to limit the dose of analgesia; this is unethical especially after surgery, even if they had good intentions while doing this.

The physicians write analgesia prescription in the medication sheet that is not suitable for the patients, its low dose and not opioids, they do that because they fear from addiction and from the drugs complications.

Another constraint defined by the participants was the continuous interference of the patient’s family in their work. They found that the patients’ families created a sense of hostility, were over-demanding and increased the patients’ awareness of pain.

The ideal way of POP relief

Contrary to current practice, the participants described the ideal way of handling POP. The theme “facing the feelings for the necessity to change” exhibited the driving forces for improving POP assessment and management. In addition to the need for the administrative support for improving the nursing care delivered to the postoperative patients in pain, the participants suggested to develop unified and standardized POP

management guidelines. The adoption of these guidelines could be facilitated by the establishment of a pain control department within the hospital setting.

We need specific guidelines for POP assessment and management, this will help nurses to improve their care for patients with pain, and all the nurses can follow the same guidelines, but first of all it should be approved by the administration of our hospital.

Another suggestion that was proposed by the participants and may help the nurses to deliver what they referred to as “ideal nursing care for patients in pain” was the adoption of a pain assessment scale approved by the hospital. Furthermore, there was also expressed need for improving nursing documentation of POP in the patients’ records.

It is important to use assessment scales and gain the hospital’s approval to become as a policy, so everybody will use them, and look at it seriously. Better documentation system will help in following-up the patients’ condition and protects nurses.

Documentation of Pain in the Day of Surgery

In Study II, documentation of pain management was audited in relation to four major areas using the PAAT instrument. In the day of surgery, the findings revealed that there was no evidence of documentation of pain assessment in 53% of patient’s records. In 61% of nurses’ notes the location of pain was described, which was the most frequently recorded information for pain assessment (Table 6). On the other hand, there were 4.3% of the nurses who used the pain scale, and 8.7% of the nursing notes reported the quality of pain.

Table 6. The frequencies and percentages of pain assessment documentation in patients’ records on the day of surgery (N=322)

Pain assessment documentation	N (%)
No documentation	113 (53.1)
Verbal statement about pain	64 (20)
Location	197 (61.2)
Use of pain scale	14 (4.3)
Duration of pain	68 (21.1)
What improves pain	32 (9.9)
What aggravates pain	30 (9.3)
Quality of pain	28 (8.7)

Note: more than one alternative can be noted in one record.

The findings also revealed that the non-pharmacological interventions were documented in 48.7% of nursing notes. There was missing information about the pain medication in more than half of the patient's records, and those who provided such information (31%) were mostly concerned with the quantity of medications given. In addition, the outcomes of the interventions were described in 15% of the nursing notes, but they mostly contained quantified evaluation of the pharmacological intervention, and there were no details about the side effects of the analgesics and observed non-verbal behaviors (Table 7).

Table 7. The frequencies and percentages of pharmacological and non-pharmacological interventions in patients' records on the day of surgery (N=322)

Nature of documentation	N (%)
Non-pharmacological interventions	
No documentation	165 (51.3)
Cough and deep breathing with a towel	11 (3.5)
Turning	16 (4.6)
Education	13 (4)
Position for comfort	16 (5)
Massage	15 (4.7)
Relaxation	7 (2.2)
Other interventions	122 (39.1)
Pharmacological interventions	
No documentation	173 (53.7)
Quantifiable amount	101 (31.4)
Non-quantifiable amount	48 (14.9)
Outcome of interventions	
No documentation	273 (84.8)
Side-effects of analgesics/sedatives	0 (0)
Non-quantifiable evaluation of analgesics/sedatives	3 (0.9)
Quantifiable evaluation of analgesics/sedatives	41 (12.8)
Non-quantifiable evaluation of non-pharmacological interventions	2 (0.6)
Quantifiable evaluation of non-pharmacological interventions	3 (0.9)

Note: more than one alternative can be noted in one record.

Similar findings were found when examining the patients' records using NANDA characteristics for the diagnosis of acute pain. These findings revealed that nurses tend to frequently document patients' self report of pain and the patients' crying (92% and 62% of the patients' records respectively). The other acute pain characteristics such as restlessness and changes in pulse were rarely documented or absent.

Nurses Tend to Document POP Less Often Overtime

The analysis of nurses' notes in the three postoperative days utilizing PAAT tool is represented by comparing the mean scores in each category. The findings showed that

nurses tend to document POP assessment and interventions less often over time (Figure 4). A significant decrease was found in the documentation of patients' POP in all the tool's categories among the three postoperative days, mainly between the first and the third day. For example the mean scores for documentation in the pharmacologic interventions category was found to be decreased significantly ($p = 0.007$) among the three days after surgery (1, 0.69, and 0.02 respectively).

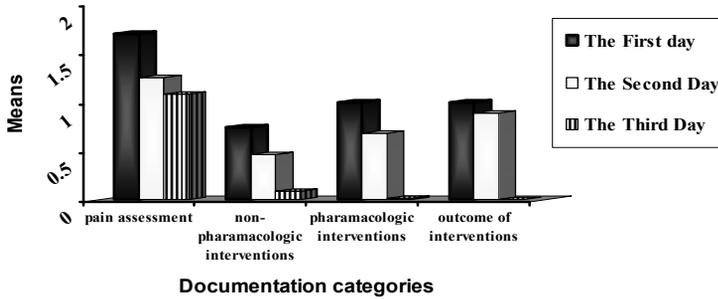


Figure 4: Differences in documentation of pain assessment, interventions and outcomes the first three postoperative days

Nursing Documentation Lacks a Comprehensive Care Plan

Recording of POP management was scored in Study II to assess the comprehensiveness of nursing documentation. The scoring was based on the Ehnfors and Smedby (1993) criteria for a comprehensive documentation using a five-point scale that reflects the steps of documenting the nursing care plan (Table 8). The results of auditing the 322 patients' records revealed that the mean score was 1.4 on a scale ranging from 1 to 5, and more than 80% of the records were ranked below the minimum score for a satisfactory documentation. About 2% of the records received the highest score in the documentation process, and about 6 % records contained evidence of planned, imple-

Table 8. Scores of comprehensiveness in recording of pain management (N = 322)

The Scores*	Comprehensiveness Criteria	N (%)
0	No evidence of documentation	41 (12.7)
1	The problem is described or interventions planned or have been implemented.	178 (55.2)
2	The problem is described and interventions are planned or have been implemented.	54 (16.8)
3	The problem is described and interventions are planned or have been implemented. The nursing outcome is noted	24 (7.4)
4	The problem is described; interventions are planned and have been implemented. The nursing outcome is noted.	18 (5.7)
5	All steps comprising the nursing process are recorded. The recording is of relevance to nursing.	7 (2.2)
Total		322(100)

*A score of 5 indicates optimal comprehensiveness. A score of 3 points is considered to be the minimum score for satisfactory documentation.

mented interventions and outcome notes for pain relief. In most records, there was no obvious plan of care, and no outcome notes that indicate the progress of the problem or the response to management.

The Effects of the POP Management Program (Studies III and IV)

The findings of studies I and II formed baseline data to define the problem in POP management at the Jordanian surgical wards, and draw attention to the fact that there was a need for establishing pain management educational program. Studies III and IV were conducted to assess the effects of the implementation of this program in improving the quality of care provided for patients having POP and on their knowledge of pain and behaviors toward it. The following represents the results of each indicator for change before and after the intervention.

1. Improved POP communication between patients and nurses

In Study III, patients were asked questions that reflect communication with nurses about their pain and their satisfaction with the pain management service. Although the number of patients who talked about pain complaints with nurses was almost the same before and after the intervention of the program, there were 71% patients in the intervention group who received information about pain and pain management from nurses compared to only 13% patients before the intervention. Similarly, the proportion of patients who were satisfied with the pain control intervention was higher after the implementation of the POPM program (92% vs. 63 %, $p < .05$).

Moreover, the percentage of patients who were very satisfied with the pain management service was higher after the intervention program as compared with the percentage before the program (28% vs. 7%). Furthermore, there was a significant increase ($p < .05$) in the percentage of patients (85%) who rated the quality of information about pain given by the nurses as good and very good after the implementation of the program compared to 12% before the implementation.

2. Improved quality of the nurses' pain assessment

Rating of pain on the NRS by both the researchers' and the attending nurses was carried out (Study III) on two occasions (the day of surgery and on the third day after surgery) before and after the intervention (Figure 5). Considering the researchers' assessment as a reference point for accurate rating, the mean difference between the nurses' and researchers' pain intensity rating scores was considered to be significant if it was within a range of +1 and -1.

After the implementation of the POPM program, there was a significant ($p < .05$) agreement between the pain ratings of the researchers' and the nurses' ratings, where the mean scores differences were less than one point on the two occasions of assessment. Whereas the mean scores before the intervention phase was found to be 2.17mm on the day of surgery and 1.72mm on the third day of surgery compared to 0.44mm and 0.76mm respectively after the implementation of the program. Thus, these findings indicated that nurses became more accurate in their assessment of patients' pain intensity after the implementation of the POPM program.

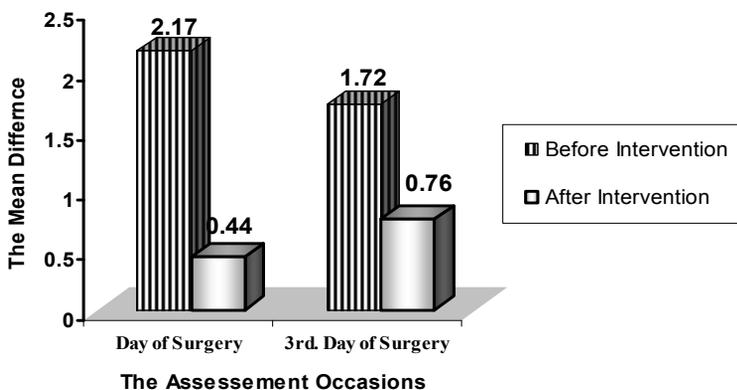


Figure 5: The mean difference scores between the researchers' and the nurses' postoperative pain assessment

3. Improved documentation of POP

Patients' records (N=240) were audited in Study III using PAAT instrument to assess the documentation of pain management before and after the implementation of the POP management program. The findings showed that after implementation of the POPM program, there was a significant increase in the entire documentation items and mainly in the pain assessment category. All of the assessment information in the patients' records increased in the post-intervention phase, mostly in the description of the location (83% vs. 25%), the duration (67% vs. 8%), and what improves the pain (82% vs. 16%). In addition, the majority of the nurses used scales to evaluate the patients' pain which was not evident in the pre-intervention phase.

In spite of the limited nurses' notes concerning the use of some non-pharmacological interventions in the post-intervention phase such as massage and relaxation methods, there was significant increase in the overall percentage of this category (73% vs. 22%). Furthermore, there was a significant increase in the percentage of patients' records (66% vs. 8%) that described the outcomes of interventions and for the most part that is concerned with the description of the side-effects of analgesics. On the other hand, there was no significant difference between the pre- and the post-intervention phases regarding the documentation of pharmacological interventions, and there was no significant increase in the quantifiable and non-quantifiable evaluation of non-pharmacological interventions (Figure 6).

In addition to auditing the patients' records using the PAAT instrument, the records were also scored for the comprehensiveness of nursing documentation using the same criteria in Study II (developed by Ehnfors & Smedby, 1993). Findings in Study IV showed that after the implementation of the POPM program, the mean score for sat-

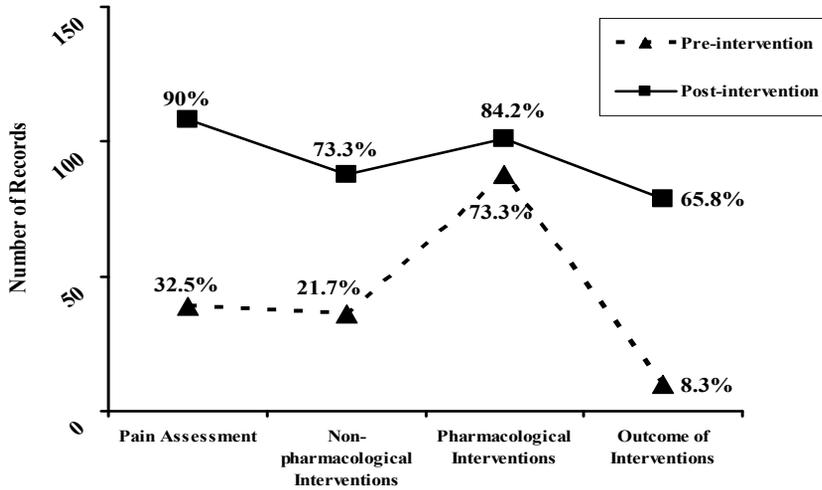


Figure 6: Nurses' documentation of PAAT main categories before and after the intervention of the POPM program (N=240)

isfaction ranging from 1 to 5 was increased from 2.16 to 3.26. Also, 39% of the patients' records contained the description of the implementation of nursing care plan in addition to notes about the outcomes. Moreover, there was a significant increase in the percentage of patient's records that were ranked 3 and above in the post-intervention phase (85%) compared to the pre-intervention phase (24%). Therefore, since a score of three was estimated in this study to be the minimum score for satisfactory documentation; most of the patients' records were ranked above the satisfactory level of documentation.

4. Improved nurses' knowledge and attitudes toward POP

Results of the 21 items questionnaire that is used to test the nurses' knowledge of and their attitudes toward pain (Study IV) showed that after implementation of the POPM program, the mean score for all the questionnaire items significantly increased from 46% to 75%. The average of the correct answers also increased from 9/21 to 16/21 in the post-intervention phase. Furthermore, there was a statistically significant difference in the number of correct answers between nurses' responses in the pre-intervention phase and their responses in the post-intervention phase for the majority of the questionnaire items. Table 9 presents the correct answers to the questions that reflect improvement in the nurses' knowledge and attitudes toward patients with POP after the implementation of the program.

Table 9. Numbers and percentages of nurses' correct answers in Zanolin et al (2007) questionnaire before and after the intervention (N=65)

Items in the Questionnaire	Pre-intervention	Post-intervention
- Giving narcotics on a regular schedule is preferred over "p.r.n" schedule for continuous pain.	22 (33.8)	49 (75.4)
- A patient should experience discomfort prior to giving the next dose of pain meds.	30 (46.2)	54 (83.1)
- When a patient requests increasing amounts of analgesics to control pain, this usually indicates that the patient is psychologically dependent.	20 (30.8)	54 (83.1)
- When a patient in pain is receiving analgesic medication on a "p.r.n." basis, it is appropriate for the patient to request pain meds before the pain returns.	10 (15.4)	45 (69.2)
- Staff can always pick up cues from patients that indicate that they are in pain.	15 (23.1)	49 (75.4)
- Because narcotics can cause respiratory depression, they should not be used for patients.	19 (29.2)	51 (78.5)
- Children cry all the time; therefore, diversional activities are indicated rather than actual pain meds.	20 (30.8)	50 (76.9)
- It may often be useful to give a placebo to a patient in pain to assess if he is genuinely in pain.	22 (33.9)	52 (80)
- Lack of pain expression does not mean lack of pain.	35 (53.9)	52 (80)
- Estimation of pain by a physician or a nurse is as valid a measure of pain as a patient's self-report.	11 (16.9)	45 (69.2)
- Patients having severe chronic pain often need higher dosages of analgesics than patients with acute pain.	29 (44.6)	44 (67.7)
- Increasing analgesic requirements are signs that the patient is becoming addicted to the narcotic.	12 (18.5)	49 (75.4)
- If a patient/family member reports that a narcotic is causing euphoria, she/he should be given a lower dose of analgesic.	14 (21.5)	42 (64.6)
The Total	65 (100%)	65 (100%)

The findings also showed that the participating nurses still had some incorrect answers to questions related to drug therapy after the implementation of the POPM program. For example: around 43% of nurses answered that there is maximum dose for Morphine, and 32% of nurses thought that patients having chronic pain do not need higher doses than what the acute patients' need. Also, there were 35% of nurses responded in the questionnaire that the doses of narcotics should be decreased if the drugs caused euphoria. Table 10 presents the questions of the least scores in the questionnaire after the implementation of the program.

Table 10. Numbers and percentages of nurses' correct answers in Zanolin et al. (2007) questionnaire before and after the intervention (N=64)

Items in the Questionnaire	Pre-intervention N=65 (100%)	Post-intervention N=65 (100%)
- When a patient in pain is receiving analgesic medication on a "p.r.n." basis, it is appropriate for the patient to request pain meds before the pain returns.	10 (15.4)	45 (69.2)
- The most suitable dose of morphine for a patient in pain is a dose that best controls the symptoms; there is no maximum dose for morphine.	10 (15.4)	37 (56.9)
- Estimation of pain by a physician or a nurse is as valid a measure of pain as a patient's self-report.	11 (16.9)	45 (69.2)
- Patients having severe chronic pain often need higher dosages of analgesics than patients with acute pain.	29 (44.6)	44 (67.7)
- If a patient/family member reports that a narcotic is causing euphoria, she/he should be given a lower dose of analgesic.	14 (21.5)	42 (64.6)

To conclude, the findings of the four studies in this thesis indicated that the implementation of an educational program for nurses could be effective in improving the nurses' assessment and documentation practices of POP in the surgical wards. Also, with the use of the educational programs and follow up, the participating nurses improved their level of knowledge about pain management, and their attitudes toward it were positively changed. However, many aspects need to be further investigated such as the underestimation of pain intensity by nurses when using the NRS for POP assessment, as well as the insufficient documentation that may reflect the lack of usage of some non-pharmacological interventions such as the message and the relaxation techniques. Another area that needs further educational preparation is the nurses' knowledge about the use of narcotics and their side effects, where the findings in Study IV showed that the participating nurses' still lack that part of knowledge about pain management even after implementation of the educational program.

CHAPTER IV

DISCUSSION

This chapter presents general discussion of the findings from the four studies. It also discusses the methodological considerations that were related to the quantitative and qualitative data involved in the studies.

General Discussion of the Findings

The thesis is based on four studies with the overall aim to describe the current nursing POP assessment and management practices in the surgical wards in Jordan, and to evaluate the effectiveness of implementing the POPM program in the nurses' POP assessment and management practices in the surgical wards. This requires changing the surgical nurses' knowledge and attitudes toward POPM. Managing change is one of the most difficult challenges facing practitioners and in all organizations at all levels. The expectation of such change is that it produces quality and efficiency that considerably improve performance (McGreevy, 2008). According to Lewin's model, behavior is determined by the totality of an individual's situation, and individuals were seen to behave differently according to the way in which tensions between perceptions of the self and of the environment were worked through. Within this, individuals and groups could participate in a series of life spaces such as the work space (Lewin 1951).

The empirical findings of the intervention studies provided evidence based knowledge on how nurses can accommodate change into their practice. According to Rycroft-Malone, Harvey and Seers (2004), the three elements that can influence change in practice are evidence, facilitation, and context. Evidence is the published research findings and clinician expertise. Context is the organization's values and beliefs, and autonomy of decision making, and audit. Facilitation is helping and enabling techniques to do the change (Rycroft-Malone, Harvey and Seers, 2004).

Restraints and Possibilities

The findings (Studies I and II) showed need for a considerable change of the existing state of caring for patients having POP in the surgical wards. The findings of these studies formed a baseline data and a scientific proof that can be utilized to persuade the key persons in the nursing administration for the need to improve the quality of nursing care provided by the surgical nurses. Stringer and Genat (2004) stated that the purpose of research is to provide people with knowledge and understanding that makes a difference in their lives, and serves as a mean to engage into the change process. "It may not include fundamental changes in their views or cultural orientation, but rather enable them to see themselves, others, events, and phenomena with greater clarity in a positive way" (Stringer & Genat, 2004, p3).

It appeared that the nurses have a greater awareness and understanding of what it means to care for patients' in POP, yet are unable to act. In addition, the means by which nurses coped with the limitations of their role seemed to be insufficient to re-

lieve their patients' suffering. The consequences of this is an ethical dilemma and an ethical conflict for nurses as they are captured between ideal (to alleviate suffering caused by pain) and reality which means that they are not allowed or able to relief pain and thus patients' suffering. Similar results have been described by Ferrell (2005) who found that nurses could not practice good care of patients eventhough they understood the patients' sufferings and needs in relation to the management of pain.

One important issue that needs to be illuminated from the interpretation of nurses' experiences is their feeling that they were incapacitated by the system. In other words, they were not allowed to practice their role in relieving the patients' POP efficiently because the hospital's administrators did not understood their dilemma and the physicians did not facilitate nurses' task and duty to alleviate patients' suffering and in this case relief their pain. The participants explained the physicians' behaviors that they were resulted from the lack of trust in their abilities to perform their role efficiently. This indicates that pain management does not only consist of treatment but it also involves regulations and rules which demand activities from both nursing administrators and physicians or maybe new more efficient models for pain treatment and trustful team work must be developed.

The fact that they were not allowed applying what they learnt, because they were restrained by the hospital's rules and meeting work requirements, resulted in their feeling of frustration and distress. For example, watching the physicians' use of the "as needed analgesics" formed another barrier for effective POPM as described by the participants. Studies approved that the use of this form of order for analgesia as the primary mode of pain therapy often causes fluctuations in pain control (Manias, 2003; Polomano, Dunwoody, Krenzischek & Rathmell, 2008).

Maier-Lorentz (2000) encouraged nurses to create an environment that incorporated nurse advocacy for patients. He emphasized that nurses develop skills in moral reasoning, through recognition of their values, as well as values of the organization in which they work to determine if it fits, to gain support in the advocacy role. This should be realized by the hospital administration and physicians to take active role in supporting nurses' efforts to carry out nursing care of patients with high quality. Another action in relation to health care organizations seeking for quality improvement in their institutions is to gain understanding of the RNs views about the current management practices of the POPM, and also to cooperate with physicians in order to support and empower nurses to receive more independence in their practice. Effective management of pain is a primary goal of each health care provider, and leaders of the hospital should overcome the barriers which counteract health care professional's efforts to relief patients' POP (APS, 2003; Li, 2008). Knowledge and education can form a solid base for nurses to request for improvement, and starting with self-upgrading can facilitate the change of other health care professionals' attitudes toward POPM.

Misconceptions and Lack of Knowledge

The participants identified many areas that need to be changed in caring for patients in the surgical ward (Study I). One of the most important areas is the need to overcome the barriers toward effective POPM. For example, the need to change some of the mis-

conceptions held by many of the health care providers mainly that is related to the use of placebo in managing POP. Cahana (2007) clarified that placebos are themselves inactive; however, a patient may have either positive or negative response to them. The health care professionals' irrational fear of opioids addiction forms another misconception that stands as a barrier to effective POPM as mentioned by the Jordanian surgical nurses. A similar finding was found in an action research study conducted by Finley, Forgeron, and Arnaout (2008) in a cancer center in Jordan. The study findings revealed that almost all of the health professionals have a dominant fear of opioid addiction and side effects that inhibited their use. Also, they had poor knowledge about the meaning of addiction; they believed that tolerance and physical dependence were equal to addiction, and that the patients fabricate pain reports to receive opioids.

Suggestions for Improving the Nursing Care

An important finding derived from study I that nurses suggested solutions for improving the quality of care delivered for patients who have pain. They recommended adopting standardized tools for assessment and documentation that are approved by the hospital, and the development of guidelines for POP assessment and management such as the JCAHO guidelines for acute pain management in the surgical wards. These guidelines are not intended to replace clinical judgment, but rather to assist health care professionals to reduce practice variations (Schechter, 2004). Similar findings were reported by Jiang, Ciccone and Jakubowski (2001) who emphasized the use of the JCAHO guidelines for acute pain management taking into consideration the effects of the hospital's internal resources in fostering or inhibiting the implementation of these guidelines

Documentation of Patients' POP

The findings from study II revealed that most nurses' notes contained limited information about observation of non-verbal patient's behavior of POP, pharmacological and non-pharmacological interventions, and there was a real deficiency in recording the outcomes of intervention. Also, the use of pain scales to assess the patients' POP during the first day and subsequent days was not evident. Moreover, documenting POP according to NANDA characteristics for acute pain showed considerable deficiencies in the patients' records. The same findings were reported through many previous studies on nursing documentation of pain (Briggs & Dean, 1998; Dalton, Carlson, Blau, Lindley, Greer, & Youngblood, 2001; Idvall & Ehrenberg, 2002). Study II also found that nurses record the patients' experience of pain initially, but subsequent pain assessment documentation following the first day was almost absent. The infrequent documentation of subsequent assessments has also been found in some other studies (DeRond, 2000; Dalton et al, 2001, Chanvej, 2004). In general, the quality of pain documentation in the present study and the previous studies was found to be poor, which could be presented as an evidence for the presence of a problem of insufficient assessment and management practices that could be related to lack of knowledge in the importance of documentation.

The findings also showed that the process of POP management was not recorded in a comprehensive way, and most of the records were ranked below the minimum score for a satisfactory documentation. These findings might be explained by the lack of

legislation and hospital policies that emphasize the importance of POP documentation and using pain scales. The (JCAHO) recommended the use of the Numeric Rating Scale for adult patients' population to measure the intensity of pain and to document it (Curtiss, 2001; Goldstein, Kerkhof & Blaine, 2004). Unsatisfactory documentation could be related to the absence of well established guidelines for POP assessment and management. Another explanation is that nurses lack knowledge on the importance of nursing documentation and the need for using assessment tool to assess POP, or that nurses are not given enough time for documenting patients' care because they were overwhelmed by the heavy work load. Therefore pain documentation should be emphasized during nursing education and training as well. It is also necessary for hospitals to require nurses' notes on their charts for POP assessment and management and to investigate reasons for the unsatisfactory documentation and nurses work conditions. Nurses reported in this study that no one reads or utilizes the information they wrote and consider it as a waste of time.

The Intervention: Moving toward Change (Studies III and IV)

Findings of studies I and II draw attention to the fact that there is an urgent need for improving POP assessment, management and documentation in surgical wards in Jordan. According to McGreevy (2008) it is important to develop workers, and keep them motivated and retain them in the institution and therefore in-service education and activities that focus on different problems and nursing care actions are of importance for keeping a satisfactory quality of care. Nurses should also be accounted for improving their knowledge based on findings from research.

Results from previous studies supported the use of educational programs to improve the health institutional quality of care. Some of these studies showed that educating nurses' will increase patients' satisfaction with the quality of pain management (Innis, 2004; Yimyaem et al, 2006). Other recent studies revealed that the use of educational programs improved the pain assessment and management techniques provided for patients in pain which eventually raised the quality of care provided for patients (Horner et al, 2005; Bedard, Purden & Certosini, 2006; Hansson, Fridlund & Hallström, 2006).

The Effects of the Intervention Program

In the moving stage of Lewin's theory the implementation of change through the application of the intervention program were accomplished. The nurses were given the time and the opportunity to integrate what they learnt in the POPM program in their daily practice with patients having POP. According to Lewin's refreezing stage of the field theory, after applying change it is important to evaluate the achievements or the outcomes of change process in the intention of reaching equilibrium in the social context (Rebecca & Patronis, 2007). Therefore, the outcomes of the intervention were presented below as the improved areas and the unimproved areas.

1. Outcomes of the POPM program: Improved areas

The findings of Studies III and IV showed that the implemented POPM program demonstrated the feasibility of making substantial changes in improving POPM and there-

by the quality of nursing care based on patients' reports. When comparing the findings before and after the implementation of the program, there were significant changes in the nurses' practices and attitudes toward pain management. The following changes can be clearly noted after the implementation of the POPM:

- Patients in the intervention group reported that they received information about pain and pain management from nurses, and most of them (85%) rated the quality of the information provided as good or very good. This might be taken as support for the effectiveness of the quality improvement program in stimulating the participated nurses to apply the gained knowledge into their practice. A similar finding was found in a study by Chung and Lui (2003) in a survey conducted to examine POP intensity and patients' satisfaction level from POPM which revealed that patients who received information about pain and its management reported lower level of current intensity of pain, and were satisfied with the health care professionals regarding their POPM.
- There was a significant agreement (mean score difference less than 1) between the researchers' ratings and the nurses' ratings. This means that nurses became more accurate in assessing patient's pain intensity and improved their abilities in using the scales effectively. However, no studies were found in the literature that compared the researchers' rating with the nurses' rating of pain intensity.
- There was a significant improvement in nursing knowledge of and attitudes toward pain. The nurses developed better understanding about the nature of pain complaints, and their beliefs were changed mainly those related to the patients' right to be free from pain. This finding was congruent with other studies that supported the positive influence of the educational program in improving nurses' knowledge and practice regarding the care of patients in pain (Barton, Don & Foureur, 2004; Innis, 2004; Ravaud et al, 2004; Patiraki et al, 2006).
- Nurses developed awareness about the nature of pain, its subjectivity, and their responsibility in treating it accordingly without judging the patients. According to McCaffery and Pasero (2002), pain is a subjective experience and the patient is the authority on pain not the clinician, and pain should be treated based on individual differences.
- There were statically significant improvements in most of the documentation categories and nurses started to use pain scales in their assessment of patients' POP. This means that nurses recognized the importance of documentation as an important indicator for their pain management practices. This finding provides strong evidence that the educational program not only motivated nurses to positively change their documentation practices, but also influenced their methods in assessing POP. Findings from several previous studies also confirmed the effectiveness of the educational programs in improving nursing documentation practices (De Rond et al, 2000; Dalton et al, 2001)

Examining the findings listed above, one can conclude that the change process is truly enhanced, to a reasonable extent, the nursing care of patients having POP through the implementation of a well developed plan and apparent evaluation at all stages. Additionally, Lewin's Force-Field Model for change formulated a well-organized strategy to plan for and implement the POPM program. Setting the studies goals, pertinent

planning for the program, and communication with the administration and the RNs affected by the program were essential components suggested by the theory for aiding in the success of the program. Additionally, integration of Lewin's theory provided a guide for the researchers to induce change in the nurses' behaviors regarding pain assessment, management and documentation.

2. Outcome of POPM program: Unimproved area

Despite of the positive findings from the evaluation of the implementation of the POPM program, there were some areas in which there is still need for improvement. Nurses in the pre-intervention phase and the post intervention phase tended to document only quantifiable amount of pharmacological interventions. Also, the results showed that other than the description of the side effect of analgesics or sedatives, nurses' neglected documentation of the outcome interventions even after implementation of the educational program. This finding need to be interpreted cautiously as it might be that the prescribed analgesics were seemed to be adequate so that there was no need for other pain relief measures, or nurses still do not perform their role of on going evaluation of patients' response to interventions. Recent studies on the nursing attitudes and beliefs about pain management identified a gap between what nurses say and their actions in regarding to POPM (Dihle, Bjölseth & Helseth, 2006; Layman Young, Horton & Davidhizer, 2006).

Another area that the results showed and still need to be improved is concerning to the use of NRS rating scale. Although nurses became more accurate in assessing patient's pain intensity and improved their abilities in using the scale, they tended to underestimate the patients' pain intensity even after the implementation of the program. This result is in contrast with some studies in this area (De Rond et al, 2000; Solman et al, 2005).

Furthermore, despite the improvement in the nurses' knowledge and attitudes toward POP following the education program, it seems that the nurses' still have some persistent traditional thinking and misconceptions about the use of opioids which might have a negative impact on their actions. One reason might be the unrealistic fears of creating side-effects or that pain is a sign from the body that is of importance for apprehending the deterioration in the patients' medical condition. Some previous studies found in the literature that support this explanation showed similar results about nurses' under-utilization of the teaching that was based on traditional thinking (Mackrodt & White, 2001; Ger et al, 2004). Findlay and Estabrooks (2006) described knowledge translation as a social process where research evidence is considered along with the personal preferences of the health care professionals and values of the organization

Methodological Considerations

The focus of this thesis was to investigate and describe barriers and possibilities for effective nursing care for patients with POP, and to empower participating nurses to implement change that improves practice. Intervention research does not imply to generalize solutions to problems that apply across a range of settings, but rather it is designed for a particular setting in which the research is conducted (Gillis & Jackson,

2002). In this thesis nurses working with adult patients who have undergone surgical procedures were the target group for change. The overall aims were to describe the current nursing POP assessment and management practices in the surgical wards in Jordan, and to evaluate the effectiveness of implementing a POPM program in improving the nurses' practices regarding pain.

In order to evaluate the impact of the educational program, different measures were used as indicators for change. The main advantage of the present thesis is the use of both qualitative and quantitative method in assessing the need to current status of POPM. The qualitative data add a new dimension to understanding of the world of the surgical nurses and disclosing their own interpretation of the events related to their care of patients with POP. These data were reinforced by the findings obtained from reviewing the nursing documents which provided further perspective to the investigation. These findings motivated the following studies for developing and implementing an intervention program.

Qualitative Data

Content-analytic procedures operate directly on text or transcripts of human communications (Krippendorff, 2004, p.18). A central idea in content analysis is that the many words of the text are classified into much fewer content categories or themes (Weber, 1990).

In qualitative methodology, issues as rigor and trustworthiness should be considered to assure credibility of research findings. The following section discusses these issues that were considered in the conduction of the qualitative study (I) in this thesis.

*1. **Credibility** refers to how congruent are the findings with the purpose of the investigation, and involves collecting rich data, triangulation, participants' checks (Seale, 2002).*

Data for study I were collected by interviewing experienced surgical nurses' caring for patients with POP. The interview allowed entrance into another person's world and was an excellent source of data. The interviews were conducted in Arabic, tape-recorded, and transcribed verbatim in Arabic and later translated into English. Since it's important in qualitative research to conduct the study in a natural setting (Gills & Jackson, 2002; Patton, 2002), informants suggested the time and place for the interview. To achieve credibility through triangulation, three researchers, who were the study's authors, analyzed the data independently at each level of the analysis process. After several discussions, the researchers were in agreement about the subthemes and the themes. Weber (1990) emphasized that it is important for the classified data be reliable which means that different researchers should draw the same conclusions regarding the codes, subthemes and themes. "The use of a research team for analyzing and interpreting data in a hermeneutic research is desirable way to proceed because different perspectives provide rich interpretations" (Gills & Jackson, 2002. P628).

Analysis began when the first data were collected and guided decisions related to further data collection. Also, the presentation of the findings of the study was consistent with the purpose, and presented in the context of the group that was studied; RNs who

cared for patients with POP. Rich descriptions of the themes present a comprehensive picture of the experience of surgical nurses; so that they appear true to the data. The themes were validated by direct quotes from the subjects (Burns & Grove, 1997). Member check means that the researcher verifies the findings with the study participants. The aim of checking the data with the participants is to obtain participants' validation (Horsburgh, 2003). This was done by returning the emerged data to the surgical nurses, who confirmed that the codes and the sub-themes represented an accurate reflection of their experiences with patients having POP.

2. Dependability *relates to how well the results are consistent with the data collected. It involves decisions related to sample selection and the detailed reporting of the methods and procedures used in data collection (Seale, 2002).*

The study contained detailed description of the method and the procedure used in data collection. In addition, the sampling procedure in this study was purposive, by interviewing RNs with a minimum experience of two years in the surgical wards, who were considered by their head nurses and peers to have a high degree of expertise, and who were willing to share their experiences in caring for patients with POP. "The informants must be willing to express their inner feelings and describe the experience that occurs with these feelings" (Burns and Grove, 1997:p66). Although the participants were only 12 RN, they were rich informants and were selected on the basis of their knowledge of the phenomenon being studied. Information rich informants are those from which one can learn a great deal about issues of central importance to the purpose of the research (Patton, 2002; Sandelowski, 1995). Participants were asked to describe their experiences of caring for a patient having POP. They were asked to select an experience that was important to them because it reminded them about what it means to care for patients who have pain. Detailed stories about the nurses' thoughts and feelings in the caring situations were encouraged. Participants were also allowed to control the interviews, they were free to give as much information as they wished, and the audio tape could be turned off at any time in the interviews if they requested to do so.

3. Confirmability *refers to the researchers' reflection on their assumptions, values, and evidence that acceptance was gained by the participants, controlled for bias in data collection and analysis (Seale, 2002).*

Prior to the beginning of data collection, the researchers discussed their knowledge and values about pain management to reflect their preconceptions as much as possible. Embracing hermeneutics, Gadamer (1998) described prejudices as prejudgments that exist or are rendered before all other situational elements are examined. Unlike the notion of bracketing, the researchers did not hold onto their prejudices, but rather situated them in their understanding of the texts. The researchers' prejudices helped in determining what they can recognize, and they provided access to the participants' world. In hermeneutic research, we need to keep our prejudices within view, and filter our perceptions and interpretations.

Furthermore, allowing participants to tell their stories without any structured questions encouraged them to present their experience as they lived it. In agreement with Kohli (1981), telling stories represents how people see the world from their own per-

spective. In other words, the credibility of describing the participants stories is high, because they were telling what they believe and describe the truth from their own experience (Denzin, & Lincoln, 2000).

4. Transferability refers to providing rich and sufficient information to enable the readers to judge the applicability of findings to other settings and demonstration of methods used to guide data gathering and analysis (Gills, 2002).

This issue was achieved through detailed description of the participants' selection, method of data analysis, and the rich prescription of the themes and the subthemes. This allows the readers of the study's report to decide the appropriateness of application of the findings in other settings.

Quantitative Data

Issues related to validity and reliability

In study II, six hospitals of large size (250 to 400 beds) in Jordan were selected for an audit of patients' records for documentation of POP assessment and management in the first 72 hours in surgical wards. The hospitals were conveniently selected because of the difficulty in obtaining permission to review the records from some hospitals' administration. On the other hand, the researcher intended to include different hospitals in Jordan where some are governmental hospitals and others are private one. This strategy may have decrease the probability of bias in the sample selection as the representation of the target population may have been more realistic. Several tools were used to audit nursing documentation on patient's records. The rationale for selecting more than one tool to audit the patients' records was that every tool assesses different aspects of nursing documentation of POP. Another reason for using several tools was the need to gain more baseline data that identify the problem in nurses' documentation of pain in the surgical wards; since there is a lack of previous studies that investigate this area in Jordan.

The inclusion criteria for the selection of the patients whose records were to be reviewed were: all the patients over 15 years of age, admitted to the hospital after surgery, and stayed as an inpatient in the surgical ward for at least three days. Exclusion criteria were: Patients who received pharmacological interventions for chronic pain management, and patients with neurological, cancer, burn, and skin procedures. The main aim for the selection of this criterion was to include the medical records of the patients who were adult, underwent general surgical procedures, and to exclude the possibility of a patient having chronic pain.

Using the hospitals' information system, a total number of 2600 records were found to meet the inclusion criteria. Both the author and three research assistants audited the records using the assessment tools for evaluation of the records. These research assistants were teaching assistants working at the Faculty of Nursing at the University of Jordan, and were willing to participate in the data collection. The main author explained each item in the tools and provided training on how to use them in the data collection. In addition, to ensure the assistants understanding of the instructions and their consistency in the auditing process, the main author and the assistants audited the same patients' records in the first hospital and compared the data for consistency

and accuracy. Further training and checking of the collected data were performed until the agreement between the data collectors reached a minimum of 96% in each tool. Inter-rater reliability was tested by comparing the records reviewers' total scores in the three audit instruments used in study II, III, and IV. Ten to fifteen percent of the patients' records were reviewed independently by the research assistants and the researcher using the auditing instruments, and a 96% value was taken as a satisfactory value for internal consistency on Cronbach's Alpha test. Data triangulation is a research approach that supports the interval validity of the studies (Gills, 2002). This was achieved by purposefully using three different auditing tools (studies II, III, and IV). This might also strengthen the reliability of the studies, in the sense that the findings obtained from study II were in agreement with the findings obtained in study III and IV before the implementation of the POPM program.

One might consider that there might be bias in the selection of only two surgical wards to apply the educational program. However, all the nurses employed in the selected surgical wards were included in the program (study III, and IV). Also, the participating nurses were willing to apply the program, since no extra hours were required for their participation, the education and the implementation were part of their working hours, and they were supported by the hospitals' administration. Accordingly, a sample of 65 nurses might be considered to be small, but it would be a sufficient sample to meet the purpose of the study.

There also may have been a Hawthorne effect in the intervention group in that the RNs were aware of the fact that they were part of the study and that their documentation would be audited. Nevertheless, they evidently became aware of the importance of improving their knowledge and documentation practices that would not been possible without joining the educational program. Also, the researchers evaluated the effects of the intervention using different tools to measure indicators other than the nurses' response to the questionnaire; such indicators as the quality of nursing assessment and the nurses' documentation.

Another issue was that the patients' sample (study III) was not equivalent in the control group and the intervention group because of the length of the study (9 months) that made it impossible to study the same patients before and after the implementation of the POPM program. However, the number of participants was equal before and after the intervention, and all of the patients included in the study met the same inclusion criteria. This was considered to help overcome any threat to the external validity of the study that may be affected by the sample characteristics.

Finally, it is worthy to affirm that the use of simple instruments to collect data such as those used in the studies can aid in analyzing and interpreting the findings in direct and non-complex way. For example, the Zanolin et al. (2007) questionnaire for assessing the nurses' knowledge and attitudes toward pain was easy to fill-in by the nurses before and after the intervention program because of it was composed of only 21 simply formulated questions and were related to the aim of the study. Also the questionnaire and the tools were easy to analyze and to compare the findings before and after the intervention.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

This study showed that Jordanian nurses were faced with patients' suffering of POP and were ambitious to provide good nursing care by alleviating their patients' pains. However, they were not allowed nor have the necessary tools to perform what they strive for. This evoked frustration and ethical conflicts. Indirectly it could be assessed that the quality of nursing care was affected in a negative way. This was clearly seen in the nurses' documentation of the patients' pain following surgery. The frequency of pain, treatment and outcome of different interventions were not satisfactory documented.

However, the findings also illustrated that the implementation of an educational program for nurses to improve the quality of nursing care provided for patients with POP might be successful. Nurses improved in many means related to the care of postoperative patients. Firstly, nurses improved their knowledge about pain, and their attitudes toward it were evidently changed. They became aware of the nature of pain, how it should be assessed and what is the best management for the POP. Secondly, the nurses developed the habit of assessing POP intensity using the NRS in addition to the assessment of other pain characteristics. Thirdly, the nurses improved to a great extent their practice in documenting patients' pain. The patients' records showed a significant difference in the amount and the quality of nursing documentation which reflected the fact that nurses became more aware about the importance of documentation and might also means that they change their practices toward better POP management.

Contribution to the Knowledge of the POPM

The studies provide several contributions to the knowledge and understanding of the POP current management practices in the surgical wards in Jordan. This includes the recognition of the surgical patients suffering due to the unsatisfactory pain management routines, the impact of health institutions restraints on nurses that prohibit them from providing quality of care for patients with POP, and the need to change the current practices of nursing documentation of POP. The findings add to a growing body of literature on the benefits of implementing educational programs for nurses to improve their roles in caring for patients with POP. Moreover, other research has focused on the use of qualitative methods to explore patients' experiences, while there were real limited studies that were employed to this method to elicit the nurses' experiences in caring for patients with pain. Therefore, this study provides a new dimension to understanding of the world of the surgical nurses and disclosing their own interpretation of the events related to their care of patients with POP.

Implications for Nursing Practice

The findings of this thesis have many important implications for nursing practice and nurses are expected to take the responsibility of alleviating patient POP. On the other hand, the nurses were constrained by the limited possibilities to carry on this respon-

sibility. This issue must be high lightened and discussed so that appropriate actions can be taken for the benefit of delivering high quality of nursing care for patients in pain. This study provides opportunities for nurses to evaluate themselves in the area of POP knowledge and management practices which may affect their caring abilities and often help them to work better with other health professionals. This will later promote their personal and professional growth which will eventually be reflected on improving their practice to enhance the quality of nursing care provided for patients with POP. Another implication related to nursing practice is that this study might increase the awareness of the health care professionals and the health institutions administration toward the establishment of team work to induce change with a common purpose in upgrading the quality of pain assessment and management. However, it is important that this team emphasizes sharing process, multidisciplinary approach and ongoing evaluation. Physicians' engagement in pain management programs is important to improve the new routines and treatment patterns (Gordon et al, 2005; Hansson et al, 2006). Managers and supervisors can facilitate the application of educational programs and incorporate with the team to move more quickly in the desired change.

Furthermore, the implementation of the program was within the context of POP management in Jordan, where no national standards and limited resources are available for effective POP management. The findings add to a growing body of literature on the benefits of implementing educational programs for nurses to improve their roles in caring for patients with POP mainly in Jordan and in other surgical wards in the world where personnel and financial resources are limited.

Implications for Nursing Education

This study has implications relevant to nursing education in the nursing schools and in the in-service education of health care institutions. Knowledge regarding POP must be integrated in the educational curricula. It is essential that information about acute pain management tremendously well discussed in continuing education programs and seminars. Intervention research can be a worthwhile for educators because it may allow them to join the team by helping in solving problems related to the nursing care of patients with pain. As they do that, they are more apt to look at questions that address nurses' practice. Contribution of the teachers to nursing practice could involve using the findings from this study in curriculum development, or as part of in-service programs that demands active participation of nurses and nurse educators.

Recommendations for Further Studies

It is recommended to replicate these studies to involve other surgical wards, and to study the effectiveness of implementing POPM in these wards. Moreover, change takes time, and integration of Lewin's theory can provide a guide for further studies that examine the maintenance of the change process (Rebecca & Patronis, 2007). Furthermore, it would be valuable to illuminate that the POPM program should be evaluated by a set of indicators that reflect its success. For example further investigations should involve patients as the receiver of care while implementing POPM programs. Patient's satisfaction and responses can be valuable indicators for the effectiveness of management as proved by many previous studies (Raftopoulos, 2005; Hansson et

al, 2006; Niemi-Murola, Pöyhiä, Onkinen, Rhen, Mäkelä & Niemi, 2007). Also, the nurses who attended the program should be evaluated over time to check if they are retaining what they learnt and to be evaluated by assessing patients' satisfaction with the nurses' pain management. Therefore recurrent educational activities and discussions about evidence and research findings among nurses are necessary.

SVENSK SAMMANFATTNING

Det finns en växande mängd kunskap som bidragit till förståelsen av postoperativ smärta hos patienter som genomgått kirurgiska ingrepp. Den forskning som varit inriktad på sjuksköterskornas erfarenheter av att vårda patienter med postoperativ smärta (POS) har varit begränsad. Endast ett fåtal studier som har handlat om POS har utförts i Mellanöstern och ingen av dessa har utförts i Jordanien. Det har inneburit att det finns ett stort outforskat område som rör sjuksköterskors kunskap och attityder till POS. Kontinuerlig bedömning och effektiv smärtlindring är nödvändiga komponenter för vårdkvaliteten. Dessutom är detta viktigt för patienternas säkerhet. Därför bör postoperativ smärtbedömning och utvärdering dokumenteras rutinmässigt på ett systematiskt sätt.

Tidigare studier har visat att kontroll och lindring av patienters smärta på kirurgiska vårdavdelningar fortfarande är ett problem i hälso- och sjukvården då sjuksköterskors dokumentation av patienters smärta är både inkonsekvent och ojämn. Dessutom har forskning visat att sjuksköterskor fortfarande har negativa attityder till POS vilket omöjliggör ett tillhandahållande av kvalitet i vården. Det har emellertid inte framkommit om sjuksköterskor i Jordanien har samma negativa attityder eller anger samma hinder för en god kvalitet i vården. Medvetenheten om att patienters POS är underbehandlad har medfört att åtgärder vidtagits av flera yrkesgrupper inom hälso- och sjukvården, för att komma till rätta med problemen.

Det finns i litteraturen klara bevis för att användningen av utbildningsprogram kan öka sjuksköterskornas kunskaper om POS och därmed signifikant förbättra kontrollen av patienters smärta. Dessa utbildningsprogram har emellertid utvecklats och använts i västvärlden och inte i andra delar av världen såsom i länder i mellanöstern.

Det övergripande syftet i den här avhandlingen var därför att beskriva aktuell praxis avseende postoperativ smärtlindring och hur detta utförs vid allmänna kirurgiska vårdavdelningar i Jordanien. Ett annat syfte var att utvärdera effekten av implementering av ett postoperativt smärtlindringsprogram avseende sjuksköterskornas bedömning och hantering av patienters postoperativa smärta i praxis vid kirurgiska vårdavdelningar. Avhandlingen består av fyra studier med följande specifika syften:

- Att beskriva sjuksköterskors erfarenheter av att vårda patienter med POS på kirurgiska vårdavdelningar (Studie I).
- Att beskriva och jämföra sjuksköterskors dokumentation av smärtbedömning och hantering av patienters smärta de första 72 timmarna postoperativt på kirurgiska vårdavdelningar (Studie II).
- Att utvärdera sjuksköterskors postoperativa smärtbedömning och dokumentationspraxis efter att ett postoperativt smärtlindringsprogram införts på kirurgiska vårdavdelningar (Studie III).
- Att bedöma sjuksköterskors kunskaper och attityder till patienters smärta som vårdas på kirurgiska vårdavdelningar efter det att ett smärtlindringsprogram införts och tillämpats (Studie IV).

Lewin (1951) har genom sin Force Field Model of Change (förändringsmodell) bidragit med förklaringar till mänskligt beteende i samband med förändringar. I den här avhandlingen används modellen som en struktur för planering och implementering av ett utbildningsprogram i postoperativ smärtlindring.

Både kvalitativa och kvantitativa metoder har använts i avhandlingen. En kvalitativ innehållsanalys med inspiration från hermeneutisk filosofi användes för att beskriva sjuksköterskornas erfarenheter av att vårda patienter med POS (Studie I). Intervjuer genomfördes med 12 legitimerade sjuksköterskor som arbetade på kirurgiska vårdavdelningar vid fyra sjukhus i Jordanien. För att analysera intervjutexterna användes Kvaales (1996) riktlinjer för analys av kvalitativa data.

En retrospektiv kvantitativ design användes för att insamla data från sjuksköterskornas dokumentation av patienternas postoperativa smärta, samt vilka strategier som användes för att åtgärda smärtan. Totalt 322 patienters journaler från sex sjukhus i Jordanien granskades under en period av sex månader. Granskningen gjordes med hjälp av tre instrument: Pain and Anxiety Audit Tool (PAAT), North American Nursing Diagnosis Association (NANDA) form vilket är ett formulär som innehåller kännetecknen på akut smärta och slutligen Comprehensiveness of Nursing records instrument, som är ett instrument av Ehnfors och Smedby (1993) som utvärderar innehållsrikedomen i dokumentationen av ett omvårdnadsproblem.

Efter att resultaten av delstudie I och II erhållits utarbetades och implementerades ett utbildningsprogram om smärtlindring och hantering av patienters POS vid två kirurgiska vårdavdelningar på ett universitetssjukhus i Jordanien. Programmets effekter utvärderades genom att använda en kvasiexperimentell design med en icke-ekvivalent kontrollgrupp där kontrollgruppen (120 patienter) och interventionsgruppen (120 patienter) inte kom från samma population. Alla legitimerade sjuksköterskor (65) anställda vid de två kirurgiska vårdavdelningarna accepterade inbjudan att delta i studien.

Flera olika instrument och indikatorer användes för att mäta och utvärdera effekten av utbildningsprogrammet. För det första bedömdes patienternas kommunikation med sjuksköterskorna om sin smärta och deras tillfredsställelse med sjuksköterskorna åtgärder för att lindra smärtan genom att använda ett frågeformulär utarbetat av De Rond, de Wit, Van Dam och Muller (2000). För det andra, utvärderades kvaliteten på sjuksköterskornas smärtbedömning genom att jämföra sjuksköterskornas bedömning och poängsättning av patienternas smärtintensitet med forskarnas bedömning av samma patients smärta. Denna bedömning var baserad på en numerisk värdering från 0 (ingen smärta) till 10 (den värsta smärtan). För det tredje användes ett frågeformulär med 21 frågor för att testa sjuksköterskornas kunskaper och attityder till smärta. För det fjärde granskades patientjournalerna före och efter det att implementeringen av utbildningsprogrammet skett. Det gjordes genom att använda PAAT och Ehnfors och Smedbys (1993) instrumentet som utvärderar innehållsrikedomen i beskrivningarna av patientens smärta och de åtgärder som vidtagits. Efter tre månaders datainsamling genomfördes utbildningsprogrammet (interventionen), som riktades till sjuksköterskorna vid de två kirurgiska avdelningarna. Detta program innehöll undervisning om

smärta, bedömning av smärta och användandet av en smärtskala. Undervisningen skedde i flera omgångar under en period av tre månader, för att alla sjuksköterskor skulle kunna delta.

Resultaten från studie I och II utgjorde grunden för att forskarna skulle kunna identifiera de huvudsakliga problemen och hindren och för att kunna utarbeta en strategi för förändring. Fem huvudteman framkom genom analysen av intervjuerna med sjuksköterskorna. Dessa var: Att konfronteras med patientens lidande; Att vara fångad mellan ideal och arbetsförhållanden; Att konfronteras med likgiltighet och missförstånd; Att konfronteras med familjens oro och fientlighet och Att konfronteras med en känsla av nödvändigheten av förändring.

Analysen av texterna visade åtskilliga begränsningar i arbetsförhållandena som enligt deltagarna hindrade dem i att åstadkomma en effektiv smärtlindring och därmed en tillfredsställande vårdkvalitet. För det första begränsade sjukhusets regler och föreskrifter sjuksköterskornas roll i administrerandet av medicineringen efter läkarnas ordinationer. Sjuksköterskorna hade dessutom en tung arbetsbörda och administrationen gav inte sjuksköterskorna något stöd i att åstadkomma en kontroll av patienternas smärta. Den andra begränsningen var relaterad till den olämpliga hanteringen av patienters POS av kollegor och annan hälso- och sjukvårdspersonal. Läkarna ignorerade sjuksköterskornas duglighet och förmåga och uppskattade inte deras arbete som medarbetare, utan såg dem istället bara som några som skulle lyda order. Läkarna var dessutom otillgängliga för patienterna, skrev olämpliga ordinationer och hade felaktiga uppfattningar om smärtlindrande läkemedel och deras sidoeffekter. I motsats till rådande praxis, beskrev deltagarna det ideala sättet att hantera POS. De föreslog att en av sjukhuset godkänd standardiserad smärtlindringshandbok skulle utarbetas, inkluderande ett instrument för bedömning av patienters smärtintensitet, samt att sjuksköterskornas dokumentation av patienternas smärta skulle förbättras. Efter granskning av journalerna, framkom att det fanns brister i sjuksköterskornas dokumentation av bedömningen av patienternas POS, vidtagna åtgärder och resultaten av dessa. Dokumentationen var begränsad till patienternas självrapportering av smärta och uttryck som klagan och gråt. Resultat från studien visade också att sjuksköterskornas dokumentation av bedömningen av patienternas POS, vidtagna åtgärder och resultaten av dessa minskade i takt med patientens vårdtid, samt att dokumentationen saknar en begriplig vårdplan.

Resultaten från studie I och II visade att det fanns ett trängande behov av att förbättra den postoperativa smärtlindringen för patienter på kirurgiska vårdavdelningar i Jordanien, samt att dokumentationen av POS behövde förbättras. Således implementerades ett utbildningsprogram om postoperativ smärtlindring för sjuksköterskor under tre månaders tid. Resultatet från utvärderingen visade att programmet var effektivt. Kvaliteten på kommunikation av patienternas POS och smärtlindringsåtgärder förbättrades och sjuksköterskornas vana att mäta patienternas smärta genom att använda smärtintensitetsskalan och att bedöma smärtans karaktär förbättrades. Dessutom ökade sjuksköterskornas kunskap om POS och deras attityd till POS förändrades. De blev medvetna om smärtans natur, hur smärta kunde bedömas och vad som kunde vara det bästa sättet att lindra POS. Sjuksköterskorna blev också bättre på att dokumentera

patienternas smärta och både kvaliteten på innehållet och mängden av information om patienternas POS förbättrades i journalerna. Detta återspeglade sjuksköterskornas medvetenhet om vikten av dokumentationen och därmed kanske även indirekt sin praxis att lindra patienternas smärta.

Emellertid framkom också att det fanns områden som inte förbättrades vilket kräver ytterligare insatser i relation till sjuksköterskornas kunskaper och praxis. Till exempel så underskattade sjuksköterskorna patienternas smärtintensitet när de använde den numeriska smärtskalan. Dessutom använde inte sjuksköterskorna icke-farmakologiska metoder för att lindra patienternas smärta såsom massage och avslappningstekniker. Ett annat område där det krävs fortsatt utbildning för att öka sjuksköterskornas kunskaper är användningen av narkotiska läkemedel och deras biverkningar.

Resultaten från den här forskningen har betydelse för sjuksköterskornas praxis och utbildning i omvårdnad speciellt i Jordanien. Den här studien erbjuder möjligheter för ett främjande av sjuksköterskors professionella växt och utveckling, vilket kan återspeglas i en förbättrad omvårdnad och praxis och därmed kvaliteten av vården av patienter med postoperativ smärta. Kunskap om POS måste integreras i utbildningens kursplaner. Replikerande studier rekommenderas där andra kirurgiska vårdavdelningar involveras och där effekten av olika interventioner studeras. Dessutom kan användningen av Lewins teori utgöra en vägledning för ytterligare studier som avser att undersöka varaktigheten av förändringar och förändringsprocessen. Det vore värdefullt att belysa vilka indikatorer i utbildningsprogrammet som har effekt. Till exempel skulle ytterligare studier involvera patienterna som vårdtagare under det att utbildningsprogrammet implementerades. En uppföljning och utvärderingen av effekten och hållbarheten av insatserna i utbildningsprogrammet av sjuksköterskorna kunskaper och patienternas tillfredsställelse med sjuksköterskornas smärtlindringsinsatser behöver också göras över tid. Tills sådan information finns så är det dock nödvändigt att sjuksköterskor får ta del av återkommande utbildningsinsatser och diskussioner av forskningsresultat som rör postoperativ smärtlindring.

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