

CHAPTER 2

LITERATURE REVIEW

In this study, a number of related articles and studies have been reviewed. Related information is grouped under seven aspects as follows:

1. Concept of pain
 - 1.1 Definition
 - 1.2 Pain mechanism
 - 1.3 Types of pain
2. Postoperative pain
 - 2.1 Incidence of postoperative pain
 - 2.2 Consequences of unrelieved pain in surgical patients
3. Pain experience
4. Pain experience and cultures
5. Pain measurement
6. Postoperative pain medication
7. Demographic data of Javanese and Batak people

1. Concept of Pain

Pain is an unpleasant experience and arises from a number of situations. Surgery is one of the major causes. It may accompany a psychological condition such as depression,

anxiety or emotional stress. The perception and expression of pain can be influenced by psychological events such as anxiety, emotional response, and nociception (Breitbart, 1989). Definition, pain mechanism, and types of pain are described below.

1.1 Definition

Pain is a universal human experience. The International Association for the Study of Pain (IASP) defines pain as “an unpleasant feeling that is conveyed to the brain by sensory neurons and emotional experience associated with actual or potential injury to the body” (Merskey, Lindblom, Mumford, Nathan, & Sutherland, 1994, P.210). McCaffery (1981, P.7) stated the very popular definition of pain as “whatever the experiencing person says it is and existing whenever the person says it does.” Shweder and Sullivan (1993) define pain as a complex perceptual experience that can be affected by situational factors, and by psychological processes including emotion, cognition and motivation, all of which are susceptible to cultural, ethnic and linguistic influences.

1.2 Pain Mechanism

The gate control theory, originally proposed in Melzack and Wall (1965, as cited in McCaffery & Beebe, 1989) was developed to explain the variation in perception of identical stimuli. They believe in the notion that there is a gate in the spinal cord, which under certain circumstances allows nerve impulses, resulting from pain stimulation, to pass through it and be interpreted by the brain as pain. They suggest that when the gate is open, impulses can flow through easily and when closed none can pass through. Melzack

and Wall also make the connection that the effects of psychological factors, such as anxiety, on pain perception can influence the degree of opening of the gate. Clinically, the closing of the gate forms the basis of pain relief.

The surgical procedure, a barrage of nociception, brings input into the central nervous system via afferent C and A delta fibers, causing direct nerve trauma. Local tissues are damaged and subsequently release sensitizing algogenic substances such as potassium, bradikinin, prostaglandins, histamine and serotonin, as shown in Figure 2.1 (Nierhaus & Schulte, 1997).

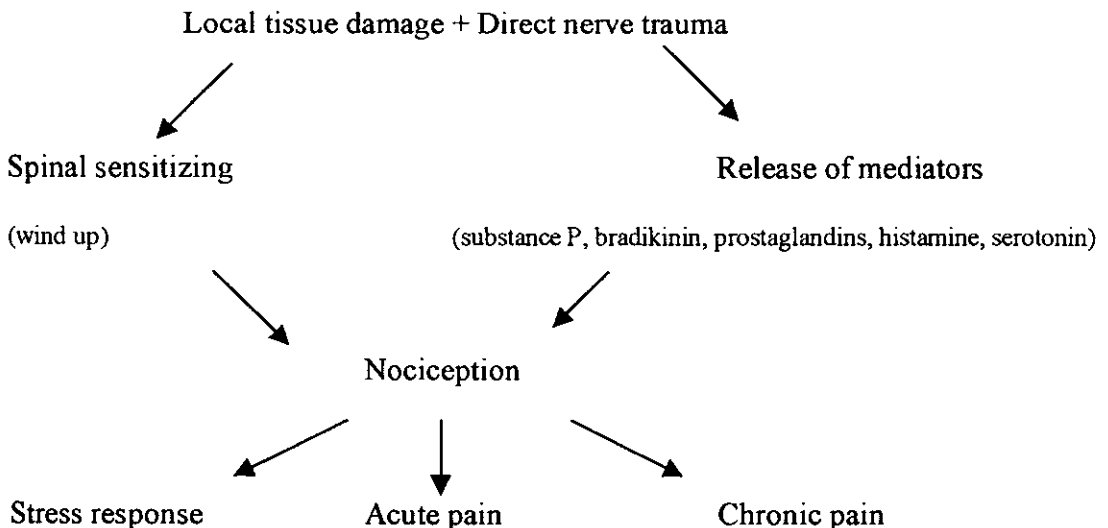


Figure 2.1 The consequences of surgery (Nierhaus & Schulte, 1997)

1.3 Types of pain

Several classification systems for types of pain exist, and each tends to reflect a philosophy or concept of treatment approaches (McCaffery & Beebe, 1989). There are two major types of pain, acute and chronic pain. Acute pain is caused by tissue damage and it diminishes as the tissue heals. Acute pain lasts for hours to days and is often accompanied by physical signs such as rapid heartbeat, sweating, pallor and inability to sleep. Examples of acute pain are incision discomfort following a surgical procedure, cholecystitis, and the unpleasant sensation that follows when hitting one's thumb with a hammer. Chronic pain generally persists for 6 months or more. Real or impending tissue damage may or may not be a factor. Other examples of chronic pain are persistent cancer pain, inflammatory joint, and degeneration of disk disease.

2. Postoperative Pain

Postoperative pain is the pain experienced as a result of surgery. The incidence, intensity, and duration of postoperative pain can vary considerably from patient to patient, from operation to operation and from one hospital to another. The site of the surgery has a profound effect upon the degree of postoperative pain a patient may suffer.

2.1 Incidence of postoperative pain

Postoperative pain is still a major and unrecognized problem. Raj (1986, as cited in Cupples, 1992) found that 30% of postoperative patients had mild pain, 30 % had moderate pain and 40% suffered from severe pain. Almost 75 % of the patients suffered

from moderate or severe pain after surgery, because they had minimal pain relief (Marks & Sachar, 1973). Donovan (1983) studied patient attitudes to postoperative pain relief and found that, 172 patients of the total were satisfied with relief of pain postoperatively, 124 patients had pain but were satisfied who 75% expected pain after operation and that for half of them the pain was less than expected and they knew it would get better, and 63% of the dissatisfied group felt that pain relief could have been given more often, 45% were worried as to the course of the pain and several did not believe the pain would go away. Khun et al. (1990) revealed that 30-70% of patients reported inadequate analgesia after surgery. In addition, Emiyati (2002) in Indonesia conducted a comparative study of 78 patients with postoperative pain and 72 nurses, regarding nurses' caring behavior in pain management. She found that all patients experienced moderate to severe pain in the 24-48 hours after surgery.

2.2 Consequences of unrelieved pain for surgical patients

Uncontrolled postsurgical pain produces several negative physiological effects that accelerate catecholamine response and increase plasma concentrations of epinephrine and norepinephrine. Inadequately treated pain may also result in cardiac arrhythmia, hypertension, and myocardial ischaemia (Crews, 2000). Another consequence of undertreatment of postoperative pain includes an increased incidence of nausea and vomiting (Quinn et al., 1994). Immobility is also induced by pain incidents and fear that any movement may cause pain, lead and can increase the potential of deep vein thrombosis, urinary retention and constipation (Carr, 1990). Nimmo and Duthie (1987)

reported that unrelieved pain after surgery is usually followed by decreased respiratory movement, especially after upper laparotomy or thoracotomy, decreased mobility, increased sympathetic activity or increased hormonal and metabolic activity resulting from surgery. Bonica (1990) revealed that inadequate relief of postoperative pain produces complications and the most common postoperative complications are pulmonary dysfunction, circulation and metabolic dysfunction, gastrointestinal dysfunction, impairment of muscle metabolism and muscle function, and thrombus formation in the lower limbs. Brown (1989) also reported that uncontrolled postoperative pain could have physiologic effects such as inability to cough, atelectasis, and pulmonary complications. Inadequate treatment may lead to disruption in many aspects of daily life, such as usual activity, mood and sleep (Wells, 2000).

The consequences of unrelieved pain in surgical patients can lead not only to unnecessary suffering for patients, but also to physical symptoms, including respiratory complications, bowel dysfunction and psychological morbidity, such as anxiety, depression, fatigue, insomnia and feelings of helplessness (Johansson & Dickson, 1995). Justins and Richardson (1991) reported that unrelieved acute pain could influence psychologically, physiologically and socioeconomic.

3. Pain Experience

Pain is a subjective human experience that can be perceived directly only by the sufferer. McGuire (1992) revealed that pain experience comprises six dimensions: physiologic, sensory, affective, cognitive, behavioral, and sociocultural. All components

of the pain experience occur together in any individual. In postoperative pain, for example, the etiology from incision, the patient may have feelings, which they describe as sharp, cutting, or lacerating. This situation is often associated with depression, fear and anxiety, and also interferes with activities, such as sleeping, walking, and eating. Finally, the sociocultural factors influence patients' perception and response to pain.

Each dimension of the pain experience is described briefly below:

(1) Physiologic dimension

The physiologic dimension encompasses the physiology of postoperative pain. Postoperative pain can result from (1) the site, nature and duration of the operation, type of incision, the amount of intraoperative trauma, (2) the presence of serious complications related to the operation, (3) the anesthetic management before, during and after the operation, (4) the quality of postoperative care (Bonica, 1990). Postoperative pain also results from a barrage of nociception input entering into the central nervous system via afferent C fiber (followed by a persistent, dull, aching sensation) and A delta fiber (a sharp, well localized sensation). Widar and Ahlstrom (1998) found that the most common location of pain is the lower back and more than half had pain in the upper extremities. They also found that the pain is worse in the evening and at night, and depending on what they have been doing during the day.

(2) Sensory dimension

The sensory dimension of postoperative pain is related to how the pain actually feels for the individual who has it (Ahles et al., 1983 as cited in McGuire, 1992).

Postoperative pain, related to the incision, is usually described as temporary. Nociceptive pain characteristics may vary depending on the location and type of surgery.

McQuay, Carrol, and Moore (1988) reported that a common problem of postoperative pain that analgesia is often less than adequate and a major difficulty is the unpredictable variation between patients. The study by Ferguson, Gilroy, and Puntillo (1997) found that the patients' worst pain intensity increased over time in ICU. They also reported that patients in ICU following CABG experienced considerable pain, which was not always relieved.

In another study, Puntillo and Weiss (1994) found differences in the magnitude of pain between patients who had cardiac and abdominal vascular surgery. Abdominal vascular surgery (AVS) patients had higher scores on almost all pain dimensions across the 3 postoperative days. Furthermore, pain intensity was significantly higher for AVS patients than for cardiac surgery (CS) patients on the first postoperative day. Kazt et al. (1996) reported that 12 patients (52%) continued to suffer from thoracotomy on a daily or weekly basis and the typical description was of a dull, aching or burning feeling situated in the chest wall.

(3) Affective dimension

The affective dimension of postoperative pain is related to how the pain makes the sufferer feel. The affective dimensions of pain consist of mood, anxiety and emotional state (McGuire, 1992). Spielberger et al. (1973, as cited in Chapman & Turner, 1990) reported that anxiety was higher presurgically than postsurgically because the patients viewed the imminent operation with apprehension and were less anxious during recovery.

(4) Cognitive dimension

The cognitive dimension is concerned with the meaning of pain and the way the patient interprets his/her pain. The meaning of a person's pain is a factor that influences his or her response to pain (Jacob, 1997). Pain is associated with the person's cultural background. A person will perceive pain differently if it suggests a threat, loss, punishment or challenge (Potter & Perry, 1997), Kosko and Flaskerud (1987), and Villarruel (1995). In the studies demonstrating the influence of beliefs about pain, Kosko and Flaskerud (1987) found that for Mexican-Americans, pain is a fright experience as a result of a punishment from God, bad luck, or an imbalance of hot and cold in the body. Villarruel (1995) further added that Mexican-American people view pain as a nature given experience that one must endure stoically and not be a burden on others.

Villarruel and de Montellano (1992) found that Aztec and Mayan civilizations believed that (1) pain was an accepted, anticipated and necessary part of human life, (2) humans had an obligation to the god and to the community of man, to endure pain in relation to the performance of duties, (3) pain should be endured stoically, (4) pain was predetermined by the god, (5) pain and suffering were a consequence of immoral behavior, and (6) pain maintained the balance within the person and the surrounding environment.

(5) Behavioral dimension

The behavioral dimension of postoperative pain is related to the way the patient responds to pain, and has two components. One is indication from the patient of the severity of pain, such as grimacing, non-verbal vocalizations, communication with others,

guarding and splinting, and the second is the behaviors that the patient engages in to control his/her pain such as use of medication, positioning, sleep, activity, work and relation with others.

(6) Sociocultural dimension

The sociocultural dimension of pain consists of ethnocultural, demographic, spiritual, beliefs, attitudes, social and other factors related to an individual's perception and response to pain (McGuire, 1992). These factors show an individual's beliefs about pain, and adjustment to the pain experience.

In every culture there is a certain way of life in which an individual may acquire attitudes, values, religion and language, as well as response to pain, fear and emotional responses. Culture also refers to the distinctive knowledge, habits, responses, ideas, and ways of living, working, or playing shared by any group of people (Walker, Tan, & George, 1995). Calvillo and Flaskerud (1993) revealed that in Mexican culture crying out in pain does not necessarily indicate that the pain is severe or that the person is experiencing a loss of self-control. Martinelli (1987) reported that pain has been associated with punishment throughout history. In most societies, family maintains authority by inflicting pain, such as the slap of the hand or spanking. Pain has been associated with obedience, guilt and punishment. In American society it is believed that men must pay for sins by suffering and emphasis on nutrition, health and fitness leads to believe in no pain, no gain (Martinelli, 1987). Pfefferboun, Adams, and Aceves (1990) found that Anglo and Hispanic children had remarkably similar reactions supporting the universality of the pain experience. However, Hispanic parents expressed greater levels

of anxiety than Anglo parents. In this situation, culture based behaviors are difficult to modify in adults but they may be less prevalent in childhood. Kodiath and Kodiath (1995) found that Indian patients often mentioned that the pain was the end of their life or that they were waiting to die because the experience of pain was almost unbearable and Americans believed that if no cure was possible then that was a sign of punishment or that they had failed in some way.

The multidimensional postoperative pain can be applied to all types of pain, including acute postoperative pain. Postoperative pain is a complex experience immediately associated with tissue injury and usually accompanied by emotional disturbance. Chapman (1985) modified and focused only on three dimensions of the human pain experience; sensory discriminative dimension, a cognitive dimension and a motivational-emotional dimension. He also stated that each dimension of the pain experience could influence the others. For example, an emotional state prior to the painful experience can influence the intensity of the experience, and reactionary emotional state can increase the pain experience after the injury has taken place. Chapman (1985) explains about sensory discrimination as one aspect of pain (Figure 2.2). He proposed that the motivational-emotional dimension of pain represents its emotional aspect and its ability to initiate and sustain actions intended to bring relief. Influences of society and culture are represented by the social-culture dimension. Pain is also influenced by conceptual-judgmental dimension.

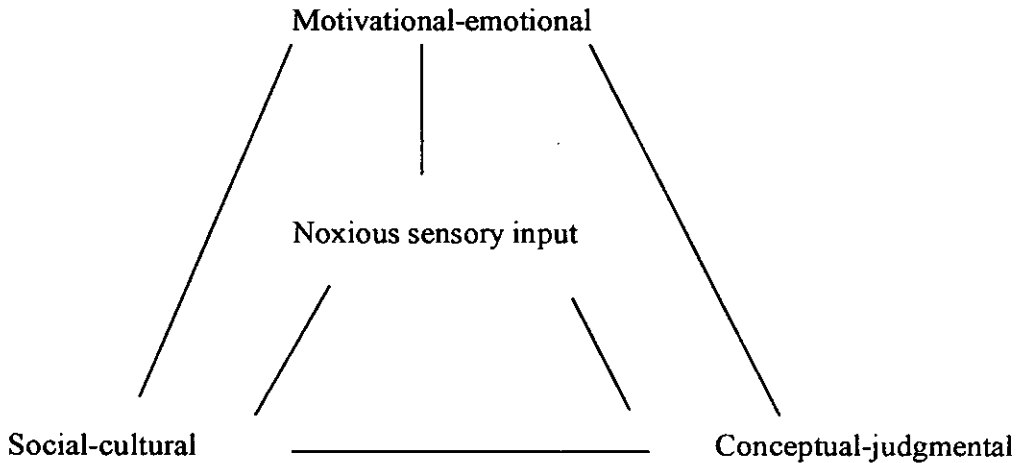


Figure 2.2 A Multidimensional conceptualization of pain (Chapman, 1985)

The first opportunity to understand the subjective experience is at the perceptual level. Perception incorporates the patient's self-report and the pain assessment made by nurses. Perception is an abstract process where the person is not just a by-stander but is immersed in the other's situation. Perception also includes the interpersonal framework in which the pain is experienced (with family, friends or alone), the meaning or reason for pain, the personal coping pattern, the presence of additional symptoms, and other concerns. Assessment and perception of a patient's experience is essential prior to planning interventions (Fink & Gate, 2001).

Individuals who are nonexpressive communicate pain to others by simply pointing to the area, whereas expressive people use both verbal and nonverbal behaviors such as moaning, gesturing, and crying. Individuals who are very expressive about their pain usually

are extroverts or members of demonstrative cultures. Expressive style, however, can complicate pain assessment (e.g., pain intensity or pain relief) (Martinelli, 1987).

Potter and Perry (1997) stated that factors that influence the pain experience are age, gender, and previous experience. The following descriptions demonstrate how these factors can influence pain

Age: Age is an important factor that can influence pain, particularly in children and adult. Developmental differences make children and adult react to pain differently. Hapidau and deCatanzaro (1992) in a study of parous women with childbirth pain age ranged 30-48 years (N=15), nulliparous ranged 17-29 years (N=17), and nulliparous ranged 30-45 (N=15), found that parous women had a higher pain threshold than both groups of nulliparous women, which did not differ from one another. Meinhart and McCaffery (1983) revealed divergent findings in relation to pain and age. They assumed that children are less sensitive to pain than adults. Faherty and Grier (1984) found that older postsurgical patients received less analgesic medication than younger patients.

Gender: There are many studies that have explored gender differences in pain sensitivity. Wise et al. (2002) revealed that men have higher average threshold, average tolerance times and also lower global pain unpleasantness rating of thermal stimuli when compared to women. Unruh (1996) found that women were more likely than men to experience a variety of recurrent pains, to report more severe levels of pain, more frequent pain and pain of longer duration. Riley et al. (1998) reported that women had a lower pain threshold and pain tolerance to a wide range of noxious stimuli. Levine and De Simone (1991) found that male patients reported significantly less pain in front of a female

experimenter than a male experimenter. However in females it was not significant, although they tended to report higher pain to the male experimenter. Morin et al. (2000) reported that women with postsurgical pain experienced more intense pain than men but that men were more disturbed than women by low levels of pain that lasted several days. Keogh and Herdenfeldt (2002) revealed that males exhibited less negative pain responses when focusing on the sensory pain (increased threshold and tolerance, and lower sensory pain) compared to females. Keogh, Hatton, and Ellery (2000) found that males and females exhibit differences in their pain tolerance for cold pressor pain. Similarly, Lautenbacher and Rollman (1993) found different outcome with respect to sex differences in responsiveness to non-painful and painful stimuli. In addition, Fillingim, Edwards and Powell (1999) reported that female exhibited greater sensitivity to thermal stimuli but thermal pain responses did not differ as a function of clinical pain among males.

Previous experience: Pain is a subjective phenomenon and each person learns from their own painful experiences. Once a person experiences severe pain, that person knows just how severe it can be. Conversely, someone who has never had severe pain may have no fear of such pain (Brunner & Suddarth, 2000).

A number of studies of pain experiences have been conducted. Puntillo (1990) found many various sources of pain experiences in ICU patients, such as surgical incisions, increased severity with movement or coughing, and difficulties in communicating because of bothering equipment. Carr (1990) revealed that preoperative expectations and postoperative pain scores differed considerably. Moore (1994) described pain from chest incisions as grabbing, tight pressure and tingling, especially when turning

in the bed and moving in and out of bed or chair, and also when coughing. Similarly Weiss et al. (1983) found that 41% of their patients experienced moderate to severe postoperative pain on their first day.

4. Pain Experience and Culture

Pain is a very individual experience and is influenced by cultural heritage. Culture has long been recognized in nursing practice and research as a factor that influence a person's expression of and reaction to pain (Villaruel & deMontellano, 1992). Expectation, manifestation, and management of pain are embedded in a cultural context (Beymer, 1998). Pain may be expressed, behaviorally and verbally, differently in different cultures but also according to the personality and individual situation (Walker, Tan & George, 1995).

Zborowski (1969 as cited in Beymer, 1998) studied 103 patients from four cultural groups (Irish Americans, Italian Americans, Jewish Americans, and Old Americans). He compared pain interpretation, significance of pain, and other specific aspects of pain experience, such as intensity, duration, and quality across the four groups. He found that Irish Americans had difficulty describing and talking about their pain, showed little emotion, de-emphasized the pain, and withdrew socially when experiencing pain. Italian Americans were expressive in their pain and preferred the company of others when in pain. They tended to request immediate pain relief by any means possible and were generally happy when the pain was relieved. The Jewish Americans preferred company while in pain, sought relief from pain and freely expressed their pain through

crying, moaning, and complaining. The Jewish American men were skeptical and suspicious of the pain, and were concerned about the implications of the pain. The Old Americans were precise in defining pain, displayed little emotion, and preferred to withdraw socially when in pain.

Zola (1983, as cited in Beymer, 1998) conducted a study about Italian American and Irish American men and women experiencing pain. The findings indicated that the Irish Americans tended to deny pain. Italian Americans tended to admit to pain and presented significantly more symptoms than the Irish Americans. Abu-Saad (1984, as cited in Beymer, 1998) studied Arab American, Asian American and Latin American children. Arab Americans used words such as sore, uncomfortable, and tingling to describe the pain. Asian children described pain as scary, paralyzing, and cold. Latin Americans children used words such as hitting, terrible, and sickening, to describe pain. Arab Americans and Latin Americans frequently indicated that they were “feeling sick to their stomach” when experiencing pain while Asian American children felt “like being lost”. Arab Americans and Asian Americans often reported feeling nervous, embarrassed, or angry when in pain, while Latin Americans children reported feeling bad when in pain.

A study by Neil (1993) found that pain response behaviors after acute myocardial infarction in Irish, Italian, Yankee, and Black patients were not significantly different among the four cultural groups. In another study Bates, Edward, and Anderson (1993) reported that Old Americans, Irish, Italians, Hispanics, Polish and French Canadians had different responses to pain that were influenced by culture. They concluded that there was association between pain intensity and ethnic identity and suggested that experiences,

beliefs and attitudes derived from growing up with these social communities, may affect one's reported perception of pain intensity. They also found that Hispanics and Italians revealed high pain intensity. Old American and Irish were intermediate and Polish, French and Canadian reported lowest pain intensity. Bernardo et al. (1996) found among the four ethnic groups, Asians (n = 37), Blacks (n= 30), Hispanic (n= 7) and Whites (n= 314), that whites used greater amounts of prescribed narcotics compared to other ethnics, and Asians used smallest amount of prescribed narcotics. In another study, Sheiner et al. (1999) studied the labor pain experience between 225 Jewish and 142 Bedouin parturient. They found that Jewish and Bedouin parturient experienced similar pain intensity level, but the medical staff perceived Bedouin women to experience less pain than Jewish women.

A study conducted by Greenwald (1991) revealed positive evidence for a relation between ethnicity and pain, but he emphasized the limited nature of this evidence. He suggested that ethnicity remains an important variable in explaining differences in health related attitudes and behavior despite significant assimilation of many ethnic groups. Age and sex are sometimes more powerful predictors of pain response than ethnicity (Lawlis et al., 1984).

Sargent (1984, as cited in Zatzick & Dimsdale 1990) demonstrated that Bariba culture has a scant vocabulary for the expression of pain, yet stoicism and pain endurance are tremendously important tacit determinants of honor and shame in Bariba culture. Whether experiencing pain from wounds incurred during battle, or the pain of circumcision, Bariba males are encouraged to demonstrate extreme stoicism rather than

suffer public dishonor. Likewise, ideal behavior for a Bariba woman in labor is to endure birth pain silently.

Several the studies revealed the relationship between pain and culture. Reid (1992, as cited in Weber, 1996) found a significant racial difference in pain tolerance, with Whites showing a higher pain tolerance than African-American. Education was a powerful predictor of pain tolerance. Reid concluded that interpersonal impact had a powerful influence on the expression of pain and also for the meaning of pain to the patient. MacGregor et al. (1997) found significant differences in acute pain response at two months of age in Chinese and non-Chinese Canadian infants, and suggested that the impact of culture occurs well before the acquisition of language.

A study by Bartfield et al., (1997) found that the physician's impression of the patient's pain, rather than of the patient's ethnicity and race influenced analgesic use. They also found that patient ethnicity and all other demographic factors did not to significantly influence analgesic administration. Todd (1996) reported that for Mexican and Anglo-American women, ethnic differences between patients and nurses increased the extent of their differences in assessing pain.

5. Pain measurement

It is essential to determine pain intensity, quality and duration in order to determine the most effective analgesic drug and appropriate dose therapies. However, as pain is a subjective human experience and its objectivity is quite difficult to achieve, the patient's self-assessment provides the most valid measurement.

An approach to the measurement of pain includes Verbal Descriptor Scales (VDS), Numeric Rating Scales (NRS), Visual Analogue Scale (VAS), Brief Pain Inventory (BPI) and Mc Gill Questionnaire (MPQ).

(1) Verbal Descriptor Scales (VDS)

The verbal descriptor scale is used to measure pain intensity, a major component of the sensory dimension of pain. The verbal descriptor scale consists of five numerically ranked words: (1) none, (2) mild, (3) moderate, (4) severe and (5) unbearable (Mc Guire, 1988).

Verbal descriptor scales have the advantages of brevity, ease of administration to patient, ease of scoring and applicability to many patients acute or chronic pain. The data produced are probably reliable and valid. It is sensitive to treatment that is known to impact pain intensity (Fink & Gates, 2001).

(2) Numeric Rating Scales (NRS)

In numeric rating scales the patients represents his/her pain intensity from 0 to 5, 0 to 10, or 0 to 100 with the understanding that 0 = no pain and 5, 10 or 100 is the worst pain imaginable (Fink & Rose, 2001). The advantages of numeric rating scales are validity to treatments, which impact pain intensity, ease in scoring, high compliance, and high number of response categories (Paice & Cohen, 1997). Sze et al. (1998) revealed that NRS could routinely be used for pain intensity assessment for Chinese patients. They also showed that 64% of these patients with pain at what level had moderate in severe disabilities to the basic activities of daily living.

(3) Visual Analogue Scales (VAS)

Visual analogue scales were introduced long time ago and have been used to measure a variety of subjective phenomena. Such scales have been described as useful in measuring pain and mood states, and more recently multiple scales have been used to measure multiple constructs in a study (Wawers & Lowe, 1990). The common VAS consists of a 10 cm horizontal straight line representing a continuum of sensation intensity. The anchor points at each end of the scale represent no pain and worst pain imaginable. The patients mark the relative intensity of pain sensation on the continuum. By measuring in millimeters the distance from the left anchor line to the mark, the patient gets a VAS score, which allows quantification on an interval level (Mc Guire, 1988). The advantages of the VAS are its sensitivity to the intensity aspect of the pain experience and it takes a shorter time to administer (Zimmerman et al., 1996). A potential problem using the VAS is that some patients may have difficulty estimating their intensity of pain on a straight line (Zimmerman et al., 1996). Liu and Aitkenhead (1991) revealed that who repeated pain assessments were more reliable than a single retrospective pain assessment.

(4) Brief Pain Inventory (BPI)

The BPI has been used in many countries. The BPI measures both pain intensity and pain interference with the patient's life (Caraceni et al., 1996). The BPI includes four pain intensity items, seven pain interference items and estimations of pain relief (Wells, 2000). For the pain intensity patients rate their average, least and worst pain in the prior 24 hours on 11-point numeric rating scales. Pain interference reflects dimensions of daily

life like ability to walk, work, general activity, mood, and relationships with others, sleep and enjoyment in life. The internal consistency of the seven-item interference scales has ranged from 0.86-0.92 (Serlin et al., 1995). Ger et al. (1999) studied the validation of the BPI in a Taiwanese population and found that the correlation coefficient for test-retest reliability was 0.79 for pain severity scale and 0.81 for pain interference. Coefficient alpha for the internal reliability was 0.81 for severity scale and 0.89 for the interference scale. Confirmatory factor analysis of BPI clearly identified the pain intensity and pain interference. The advantages of BPI are its utility across cultures and it is easy to understand (Caraceni et al., 1996). In addition, Mic Millan et al. (2000) found that the patients reported that pain interfered with all activities measured by the Brief Pain Inventory and the highest interference scores were for walk and sleep.

(5) McGill Pain Questionnaire (MPQ)

MPQ is a multidimensional instrument developed by Melzack to measure pain. MPQ has 4 parts. Part 1 consists of 78 descriptive words with 20 subscales of words that are scaled on an intensity dimension and categorized within four major categories: sensory, affective, evaluate and miscellaneous. Part 2 presents pain intensity (PPI) items that ask the patient to rate their pain on a scale of 0-5 with 0 representing no pain and 5 indicating excruciating pain. Part 3 consists of a front and back view drawing of the body, and patients are asked to mark in the areas where they are having pain. In Part 4 the patient indicates whether they have specific accompanying symptoms (nausea, headache, dizziness, constipation or diarrhea) (Zimmerman, et al., 1996).

The major pain indices obtained from the MPQ instrument are pain rating index (PRI) with separate subsections, including sensory (range 0-42), affective (range 0-14), evaluative (range 0-17) and the present pain index (PPI) (range 0-5), and the number of words chosen. The scores for each aspect of pain (sensory, affective, evaluative and miscellaneous subscales) provide data to examine a variety of concepts or constructs differentially in relation to the multidimensional features of pain (Zimmerman et al., 1996).

From the literature review, it can be summarized that pain is a universal human experience. Approaches to the measurement of pain include verbal descriptor scales (VDS), numeric rating scales (NRS), brief pain inventory (BPI), and McGill pain questionnaire. Because pain is subjective, the patient self-report provides the most valid measure of the pain experience.

Finally, cultural beliefs/practices, as well as other elements such as the pain intensity, pain interference, past experience of surgical pain, and the personality of the individual are important factors determining pain experience.

6. Postoperative Pain Medication

The objective of postoperative pain management is not only relief from pain but should be aimed at eliminating patient discomfort, initiating early recovery and avoiding, and minimizing side effects of the specific therapy (Nierhaus & Schulte, 1997).

An analgesic is a pharmacological substance that diminishes or eliminates pain without producing unconsciousness. An anesthetic is a pharmacological substance that, in

addition to abolishing pain, generally causes loss of feeling and sensation. Many analgesics, depending on their mode of action and route on administration, act as anesthesia usually accompanied by loss of consciousness and amnesia. Local anesthesia produces anesthesia in a restricted area of the body without loss of consciousness. Various factors are considered in selecting the most effective analgesic for a specific patient, these include the cause, quality, intensity, duration and distribution of the patients' pain.

Opioid drugs: The most commonly used opioid drugs are morphine, meperidine, pethidine, and methadone (Stoelting, 1999). Opioids may be administered by a variety of routes. Tramadol, a central analgesic with low affinity for opioid, and is only 5 to 10 times less potent than morphine as an analgesic (Eggers & Power, 1995). It has proven to be a weak opioid with an analgesic potency roughly similar to pethidine, but without relevant cardiovascular or respiratory depressant activity and with a very low dependency liability (Medical Articles, 1997). It appears to be a well tolerated oral, intramuscular and intravenous analgesic with very few side effects (nausea and dizziness being most frequently reported).

Opioid drugs, particularly morphine and meperidine, administered by the intramuscular administration, have been the mainstay of postoperative analgesia. It is difficult to provide a dose that will maintain analgesic plasma levels for 2 to 4 hours (Stoelting, 1999). Opioids are often significantly underdosed because of a widespread, dominant fear for patient safety.

For acute postoperative pain, the intravenous route of administration is recommended while patients are keeping NPO. Continuous intravenous infusions provide pain control as long as steady state concentrations are maintained above the minimum effective analgesic blood concentrations. Steady state concentrations are dependent on systemic clearance and this is related to hepatic blood flow. Both pethidine and morphine are suitable drugs for continuous intravenous infusions but unless a loading dose is used, a steady state is not achieved for about 24 hrs. To avoid the side effects of a large bolus, a loading dose given, as an infusion is preferable, always remembering that there is drug elimination during loading (Medical Articles, 1997).

There is a variation in the rate of onset of analgesia and its duration depending on whether the drug is lipophilic or hydrophilic and by transporting within the cerebro-spinal fluid. Morphine is hydrophilic, when administered by the spinal routes it takes about 45 minutes to reach maximum effect and lasts for 8-12 hours. Pethidine, methadone, and fentanyl being lipophilic act quickly but the duration of action is short. The dose of morphine by the epidural route is about 5-10 times that of the intrathecal route (Medical Articles, 1997).

7. Demographic Data of Javanese and Batak people

Through the combined influence of geography and historical settlement patterns, Indonesia's present population is more concentrated in Java and Madura. These islands are home to nearly 70% of the total population. These islands are part of 17,500 islands in Indonesia (Aglionby, 2003). The other big islands are Sumatra, Kalimantan, Sulawesi, and Papua. Since it consists of many islands, Indonesia has many ethnic races

represented. There are around 300 different ethnic groups distributed in 6,000 inhabited islands. Each ethnic group brings its own culture to the society. The composition of ethnic groups in Indonesia is Javanese 45%, Sundanese 14%, Maduranese 7.5%, coastal Malays 7.5%, and others (including Batak) 26%.

North Sumatra province, with over 11 million people is the most densely populated province outside Java Island. The five main ethnic groups, Batak, Malay, Javanese, Indian, and Chinese create a wide variety of modern and traditional Indonesian cultures. Other ethnic groups have known Java and Batak people for their characteristics and culture. (CBS & MI Indonesia, 1998)

Javanese people live in every district, from the western part of Indonesia to the eastern part. Therefore Java culture is quite common for all people in Indonesia. Javanese people are known as having a strong patient character. They are calm and have high tolerance for suffering. Javanese cultural values involve wisdom, acceptance of destiny, hard working, togetherness, and high tolerance for suffering (Riyadi, 1994). The majority of the Javanese people are Muslims and the rest are Christian, Buddhist, and Hindu.

Batak ethnics are derived from North Sumatra Province. The Batak, a colorful and notoriously forthright and aggressive people, inhabit a cluster of spectacularly beautiful and fertile volcanic basins at the northern end of Bukit Barisan range, focusing around Lake Toba, with the huge island of Samosir at its center. Now, although Batak people live in every part of Indonesia, their numbers are less than Javanese people. Batak people are known as having an extrovert character. They speak freely of what they want to say and what they feel. Batak cultural values involve strong sense of unity, hard work,

loyalty, and happiness in nature (Rusli, 1994). Muslims and Christians are the same proportion in Batak people.