



**The Relationship between Culture, Pain Experience and
Participation in Pain Management among Malaysian Patients
after Breast Cancer Surgery**

by

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ABSTRACT

Post-operative pain is one of the most common side-effects encountered by patients after their surgery, and more than 50% of patients experience mild to severe pain. Post-operative pain may be influenced by factors such as age, gender, psychological factors, pre-operative information and types of surgery. Additional factors that may be related to pain include culture and ethnicity, although understandings about their relationship have not been well expanded. Cultural practice is important as it may determine the patient's way of dealing with his or her pain and influence participation in healthcare. This study aimed to determine the relationship between culture and patients' pain experience, analgesic consumption and patients' participation in their pain management after surgery. It focused on patients in Malaysia who had undergone breast cancer surgery, including patients who were ethnically Malay, Chinese and Indian.

This study used a cross-sectional design and was conducted in two tertiary government hospitals in Malaysia. Eighty women who were undergoing breast cancer surgery were recruited into this study. The biocultural pain model was used as the theoretical framework for the study. The visual analogue scale was used for pain assessment, the control preferred scale was used to determine participants preferred role in pain management, and medication records were used to ascertain the participants' analgesic consumption. Face-to-face interviews were used for data collection and were conducted at four time point phases: before the operation and 4, 24 and 48 hours after the operation.

The demographic characteristics of the 80 participants indicated that the majority of the women were Malays (70%), followed by Chinese (19%) and Indians (11%). Their religion was predominantly Islam (71%), followed by Buddhism (15%), Hinduism

(10%) and Christianity (4%). Their ages ranged from 19 to 72 years old with a mean age of 53 years ($SD = 11.2$). Most of the women (88%) were diagnosed with malignant breast cancer and categorised as new cases (93%). The most common surgical type was “removal of all breast and axillary node dissection” (75%), and the length of the surgery ranged from 18 to 202 minutes.

The participants’ post-operative mean pain scores at 4, 24 and 48 hours were 27.0mm, 26.5mm and 14.0mm respectively, which were lower than their expected experiences of pain (mean score = 52.0mm). There was a significant relationship between the expected pain scores and actual pain scores at 4 and 24 hours after operation. However, ethnic group was not significantly related to pain experience at these four pain assessment points.

The analgesic most consumed by the participants during the 48 hour post-operative period was morphine equivalents (85%), followed by non steroidal anti-inflammatory drugs (60%) and paracetamol (38%). No relationship was found between culture and analgesic consumption. The most preferred role selected by the women was the “passive-passive” role (39%) and only Malay women showed a significant relationship with the “passive-passive” preferred role.

The findings of the study contribute to a beginning understanding of the relationship between culture, pain assessment and pain management, and the findings are applicable as a guide for nursing practice, education and future research. It is recommended that detailed pre- and post-operative pain assessments should be conducted to determine patients who have the potential to experience higher post-operative pain. Given the relationship between expected pain and actual pain experienced, patients may benefit from receiving a pre-operative intervention designed to inform patients about likely pain and pain management strategies, with the potential to reduce both expected and actual

post-operative pain. Such an intervention may help to empower patients and encourage them to report their pain and actively participate in pain management. Further research on culture and post-operative pain management is needed, with a larger sample size, replication of the study to multiple hospital sites and using qualitative and observational study designs.

DECLARATION

"This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself."

Signature: _____

Salimah Japar

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LIST OF ABBREVIATIONS

%	Percent
ASA	The American Society of Anesthesiologists
ED	Emergency Department
HKL	Hospital Kuala Lumpur
HPJ	Hospital Putrajaya
IASP	International Association of the Study of Pain
ICU	Intensive care unit
NRS	Numeric rating scale
PCA	Patient-controlled analgesia
SD	Standard deviation
VAS	Visual analogue scale
WHO	Who Health Organisation

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

Effective and appropriate post-operative pain management plays a crucial role in the patient's recovery from surgery. In order to assist nurses in planning and delivering effective pain management that is based on individual needs, nurses need to gain a holistic understanding of factors that impact on patient pain behaviours. To date, the influence of culture on pain behaviours has not been widely investigated, particularly in the Malaysian context. The aim of this study was to determine the relationship between culture, patients' participation in pain management and pain experience after breast surgery. In this chapter, the background of the study, the aims and significance of the study, as well as the structure of this thesis are introduced.

1.2 Background

According to the World Health Organisation (WHO, 2008), the number of major surgical operations performed worldwide is approximately 234 million every year, which is equivalent to one in every 25 people. The Malaysia Ministry of Health (MOH), reported that approximately 319,150 surgical operations were performed in 2010 in government hospitals in Malaysia, and this number was an increase of 3.5% from 2009 (Program Anestisiologi KKM, 2010). Cancers, traumatic injuries and pregnancy-related complications are the most common conditions that require surgical treatment worldwide (WHO, 2008).

Cancer is the leading cause of death in developed countries and the second leading cause in developing countries. An estimated 12.7 million new cases and 7.6 million

cancers-related deaths occurred worldwide in 2008. Breast cancer in females and lung cancer in males are the most common cancers diagnosed worldwide leading to cancer-related deaths (Jemal et al., 2011). In Malaysia, breast cancer is the most common of all the cancers (National Cancer Registry Report, 2011). More than 70% of the breast cancer treatment in Malaysia involves surgery (Pathy et al., 2011).

Alarmingly, up to seven million patients worldwide experience post-operative complications every year (WHO, 2008). Undoubtedly, pain is one of the most common complications encountered by patients after surgery and more than 50% of patients experience mild to severe pain (Chung & Lui, 2003; Coll & Ameen, 2006). The International Association for the Study of Pain (IASP, 1979) defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”. McCaffrey (1999) further defines pain as whatever the experiencing person says it is, existing whenever he says it does”. Both definitions further explain that, only a person who experiences the operation will be able to explain the pain better.

Post-operative pain may be influenced by factors such as age, gender, psychological factors, pre-operative information and types of surgery (Hui, Abrishami, Wong, & Chung, 2009). Additional factors that may be related to pain include culture and ethnicity although their relationship has not been well explored. There is emerging evidence to suggest that culture and ethnicity affect both the experience of post-operative pain and pain management (Davidhizar & Giger, 2004). According to Davidhizar and Giger (2004; p. 49), culture is shaped by values, beliefs, norms and practices shared by members of the same cultural group. These give meaning to the pain experience and influence the way pain is expressed. Malaysia is among the Asian countries that are comprised of multicultural ethnic groups. The most prominent ethnic

groups in Malaysia are the Malay, Chinese and Indian, each of whom exhibit strong cultural values that have influenced the Malaysian healthcare system.

1.3 Significance of the Current Study

Post-operative pain is an inevitable and predictable consequence of surgery. However, untreated post-operative pain is unacceptable, as effective pain management is a key indicator of the quality of patient care. A study by Gunningberg and Idvall (2007) showed that patients who experienced more pain than they anticipated were less satisfied with the quality of care provided. This finding highlights the need for effective post-operative pain management.

According to Nielsen, Rudin and Werner (2007), without effective post-operative pain management, pain may abruptly progress to a critical level. Furthermore, untreated acute pain may lead to chronic pain which exposes patients to physical impairment and susceptibility to disease, and many patients with chronic pain also suffer high levels of anxiety and depression (Brennan, Carr, & Cousins, 2007). Hence, effective pain management must be a priority as it facilitates the recovery process, may help to avoid preventable complications, and reduces patients' length of stay and healthcare costs. In addition, effective pain management may increase the satisfaction level among patients. As Cahill (1998) suggests, the provision of an effective pain management program has the potential to result in excellent outcomes in patients' levels of participation and satisfaction with their care. With many post-operative patients experiencing pain, pain management remains an issue with considerable ongoing challenges. Therefore, it was important for the present study to be conducted to help inform pain assessment and management guidelines.

This study is significant for three main reasons. First, this study is important because it involves the culture of three major ethnic groups in Malaysia: Malay, Chinese and Indian. The experience and management of post-operative pain have not been previously reported in these cultural groups. An understanding of the patients' culture is important for nurses in planning or designing effective post-operative pain management, which is based on individual patient needs. Cultural practice is important as it determines the patient's way of dealing with their pain. Every culture has its own beliefs, interpretation of pain, and ways of managing pain (Davidhizar & Giger, 2004; Narayan, 2010). These factors create a tremendous challenge in ensuring effective post-operative pain management. It is likely that an understanding and acknowledgement of the patient's culture will promote patient participation, thus, effective post-operative pain management may be achieved (Cahill, 1998). As nurses play a vital role in pain management, including pain assessment, education and delivery of pain control, consideration of culture issues is an essential component of care. Hence, the findings from this study may provide some cultural insights to be used by nurses as a guide during their care for patients from different cultural backgrounds.

Second, the present study quantifies the level of pain experienced by post-operative breast surgery patients and describes their preferred role in pain management. Therefore, the findings may inform further nursing interventions in pain management programs for patients who have undergone breast surgery.

Finally, culture has been identified as a predictor for the level of post-operative pain in a small number of studies (Salamonson & Everett, 2005; Streltzer & Wade, 1981). These studies have been conducted primarily in Western contexts with very few studies conducted in Asian contexts. Since Malaysia is one of the few countries in Asia comprising a large proportion of ethnic diversity, it is an ideal location for this study to

be conducted. The findings from this study may provide valuable information concerning nursing care, particularly in relation to post-operative pain management and may help to guide future nursing interventions and research to alleviate post-operative pain while acknowledging and respecting patients' cultures.

1.4 Structure of Thesis

The thesis is divided into six chapters. This chapter has introduced the study, providing an overview of the research, background, and significance of this study. Chapter Two discusses the definitions of pain and its physiology, provides an overview of the theories of pain, and reviews the literature on the factors that influence pain. Chapter Three describes the research questions and research design, and the methods used to conduct this study. Chapter Four presents the findings of the study based on the research questions. Chapter Five discusses the main findings in relation to the research questions, makes recommendations based on the findings, and reflects on the strengths and limitations of this study. Several recommendations for future nursing practice, education and research are highlighted. Chapter Six highlights the important elements of the study and provides some concluding remarks.

1.5 Summary

In summary, understanding the factors that contribute to post-operative pain will enable nurses to plan effective pain management, and thus contribute to the achievement of better patient outcomes. The importance of culture on pain behaviours, such as patient participation, warrants further investigation. Therefore, this study sought to determine the relationship between culture, pain experience and participation in pain management amongst post-operative breast surgery patients in the Malaysian context.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Pain is a complex phenomenon that is influenced by multiple factors including gender, age, pre-operative information, psychological factors such as anxiety and distress, type of surgery, culture and ethnicity. This integrated literature review critically discusses the definitions of pain and its physiology, management and pain theories, and the phenomenon of post-operative pain. The review identifies factors that are recognised to influence post-operative pain. Specifically, this review focuses on factors such as culture, as it is hypothesised that there is a relationship between culture, pain experience and patient participation in pain management.

The articles reviewed were accessed from the following electronic databases: CINAHL, MEDLINE, ScienceDirect, Wiley Interscience, Proquest Multiples and Google Scholar. The search terms used were: “pain”, “post-operative pain” and “pain management”. The nominated search period was January 2000 to December 2011. This search identified many general articles about pain and pain management in the post-operative period, but few articles related to culture or participant decision-making, therefore an additional search of the above search terms linked with “culture” and “participant and/or decision-making” was conducted for the period January 1980 to December 2011. The articles reviewed were in full text, English language and not focused on the paediatric population, therefore they were able to guide the research methodology.

2.2 Pain and its Physiology

There are numerous definitions of pain available in various studies related to the concept. However, the definition most consistently used is provided by the International Association of the Study of Pain (IASP), which defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (IASP, 1979). Many people report having pain or aggravated pain without ‘obvious’ evidence, such as chronic back pain, which occurs without any visible external signs of injury. Pain is not only a physical phenomenon, but also a combination of physiological, pathological, emotional, psychological, cognitive, environmental and social elements (Holdcroft & Power, 2003). Although pain may be influenced by factors such as surgery and disease, it may be experienced and perceived differently by different individuals. McCaffery believes that pain is “whatever the experiencing person says it is, existing whenever he says it does” (in Pasero, Paice & McCaffery, 1999, p. 16).

When considering pain, there are many types and subtypes of pain such as neuropathic, cancer, inflammation etc. All these subtypes are commonly known under two main categories these are acute and chronic pain. (Renn & Dorsey, 2005). The characteristics of acute pain include rapid commencement and short duration. Acute pain is associated with tissue injuries, such as surgical pain. It ceases as the tissues heal, and can last up to three months (Heye & Reeves, 2003). However, if the pain continues for more than three months or is still present after the tissues have healed, it is classified as chronic pain (Heye & Reeves, 2003; Renn & Dorsey, 2005). In other words, chronic pain is persistent pain, which still occurs after recovering from an acute injury or disease (Renn & Dorsey, 2005). Untreated chronic pain can lead to negative consequences for body systems, thus worsening pain and prolonging disease recovery (Davidhizar & Giger, 2004).

Pain occurs when a nerve receptor at the peripheral tissues or organs (called a nociceptor) is triggered by a noxious stimulus, such as a mechanical (touch or pressure), thermal (hot or cold), or chemical (endogenous or exogenous) stimulus. This noxious stimulus is then transmitted by primary afferent nerve fibres to the dorsal horn of the spinal cord before reaching the brain for pain interpretation. There are two types of nociceptors that give characteristics of pain these are myelinated A-delta fibers and unmyelinated C-fibers. Pain sensation transmitted by myelinated A-delta nerve fibres, which send out sharp or pricking sensations through the body, and can be considered the first type of pain in nature. Meanwhile, pain characteristic transmitted via unmyelinated C-delta nerve fibres, slows down the transmission of pain, and causes a dull or burning sensation to the body system, and can be perceived as the second type of pain (Hunter, 1993; Renn & Dorsey, 2005).

Four pain theories have been proposed to help understand pain. These are the gate control, neuromatrix, biopsychosocial and biocultural pain model theories. The first theory, gate-control, was introduced by Melzack and Wall in 1965 (Melzack, 1999). The theory is well recognised and widely accepted in the study of pain as it focuses on the neural mechanism, which occurs in the dorsal horn acting as a “gate”. This concept also explains that if more pain is transmitted, it will pressure the gate to open widely and, subsequently, more pain stimuli will be sent to the brain. When this happens, the brain will interpret more pain for the body system to experience (Bowsher, 1993). However, the gate control theory does not explain in detail how the brain processes pain perception and there are multiple factors inside and outside the human body system which might influence the pain. These factors are later explored in the neuromatrix pain theory.

Melzack (1999) further explored the function of the brain in respect to pain and used this to enhance the gate control theory to describe a new enhanced theory known as neuromatrix theory. Neuromatrix is a process that takes place in the brain and which triggers three dimensions of pain experiences: sensory-discriminative, cognitive-evaluative, and affective-motivational. These dimensions can be influenced by multiple factors, for instance, the body's stress regulation system, sensory output and intrinsic neural inhibitory modulation in all brain functions as well as genetic factors. This neuromatrix theory has been very popular as it has been adapted and widely used in chronic pain studies (Bradley, McKendree-Smith, & Cianfrini, 2003; Carson et al., 2005; Chou & Chi, 2005). In contrast to the gate control theory, the neuromatrix theory posits that the occurrence of pain is due to the direct response to sensory input following tissue injury, inflammation and other pathologies.

The biopsychosocial model was introduced by psychiatrist George L. Engel in 1977 (Engel, 1977). This theory was introduced to challenge the biomedical model which was being dominantly used by physicians, particularly in illness diagnosis. This theory incorporates both the biological and psychosocial influences that are said to have a significant relationship with illness. In the pain context, the biopsychosocial model proposes that the experience of pain is determined by the interaction among biological, psychological (cognitive, affective, behavioural) and social factors (social and cultural) that influence a person's perception of, and response to, physical signs and symptoms. This model is claimed to be the most complete, meaning that any model that does not include any one of these elements is considered incomplete (Gatchel, Peng, Peters, Fuchs, & Turk, 2007). However, as human life is dynamic, illnesses and diseases are continually becoming more complex; therefore, health care practitioners consistently face many challenges. Therefore, further research on this model is required to understand how it interfaces with pain behaviours. This theory has been widely used in

chronic pain studies (Bitton et al., 2008; Smilkstein, Helsper-Lucas, Ashworth, Montano, & Pagel, 1984; Syrjala & Chapko, 1995).

The fourth theory, biocultural theory, focuses on the relationship between culture and pain. This is a model for pain perception introduced by Bates (1987). This theory integrates the gate control theory, and combines the social learning theory and social comparison processes. It explains the way people deal with pain through their attitudes, behaviours and emotions and incorporates people's expectations, experiences, thoughts and lessons learned about pain within their culture. Incorporation of all these elements has created interest in the theory and has resulted in many studies around this theory (Grace & MacBride-Stewart, 2007; Juarez, Ferrell, & Borneman, 1999; Neil, Duggleby, & Roper, 1993). The biocultural model proposes that culture influences pain perception and response; however, psychological factors such as stress and anxiety are considered to be confounding factors. In the present study, the biocultural model is referred to as a guide to achieve the research objectives.

2.3 Post-operative Pain and Pain Management

Post-operative pain is an acute pain that occurs as a result of surgery, post-surgical complications or invasive procedures during surgery (Hunter, 1993). Patients may experience pain several hours after surgery, with the pain diminishing within several days to weeks (Polomano, Dunwoody, Krenzischek, & Rathmell, 2008). This condition is quite commonly experienced by post-operative patients and can usually be treated well with analgesia and effective pain management. According to Chung and Lui (2003), approximately 34% of patients reported experiencing mild pain, while 24% experienced moderate pain and about 3% of patients experienced severe pain within the 24 hour period after surgery. Similar findings have been reported by Svensson, Sjöström, and Haljamäe (2000) who found that 39% of patients experienced moderate

to severe pain within four hours of post-surgery, which increased to 43% within 24 hours. Pain usually reduces gradually beyond 24 hours, with 27% and 16% of patients reporting pain at 48 hours and 72 hours, respectively. In summary, there is evidence that the level of post-operative pain varies between individuals and may be related to factors such as age, gender, psychological factors, pre-operative information, and type of surgery. However, additional factors such as culture and ethnicity have not been adequately studied.

Under-treatment of post-operative pain is not a new issue as many studies have found that patients still experience moderate to severe pain after their operation. Hence, pain management remains an issue and there are still many challenges (Polomano, Rathmell, Krenzischek, & Dunwoody, 2008) even though it is in fact one of the key indicators for the quality of patient care (Calvin & Becker, 1999). Pain management for surgical patients covers both aspects of pre- and post-surgical care. The aims of pain management are to assess the patient's pain intensity and assist the patient towards earlier recovery by controlling the pain. If pain management is carried out effectively, it will boost the patient's recovery, reduce the patient's length of stay, increase patient and nurse satisfaction, and reduce the costs related to pain management (Polomano, Dunwoody, et al., 2008).

2.4 Factors related to Post-operative Pain

Post-operative pain is influenced by various factors that have been identified in this literature review. Among them are gender, age, psychological factors such as anxiety and distress, and type of surgery. These factors are discussed in depth in the following sub-sections, since they play a significant role in post-operative pain and pain management.

2.4.1 Gender

As a factor that influences post-operative pain, gender relates to the different perceptions and feelings about pain between males and females. Findings related to the influence of gender on pain have been mixed. A systematic review on the predictors of post-operative pain and analgesic consumption revealed that gender was not always found as a predictor for post-operative pain (Hui, et al., 2009). Of the four studies in that review, two studies found that females experienced more pain compared to males post-operatively, one study found a negative correlation (meaning that females experienced less pain compared to men), and one study found no significant correlation between gender and post-operative pain (Hui, et al., 2009).

No association was found between gender and post-operative pain in day-case surgery (Gramke et al., 2009) in a cross-sectional study conducted in the Netherlands. From a sample of 648 patients who underwent various types of day-case procedures, the results indicated that gender was not associated with post-operative pain. Patients in that study were not hospitalised as in other studies and had self-documented their pain scores at home in a pain diary provided by the researchers until day four post-surgery. The differences between the pain documented by nurses for hospitalised patients and self-documented at home may have contributed to different results.

A study in China among hospitalised Chinese patients with acute myocardial infarction also found no significance difference between gender and pain (Khan, Albarran, Lopez, & Chair, 2010). The prevalence of chest pain in this study was higher among men than among women (84.4% versus 67.2%, $p < 0.05$) and mean pain intensity scores among Chinese women who experienced an acute myocardial infarction were slightly lower than among Chinese men measured by the visual analogue scale (VAS) (7.51 ± 2.25 versus 7.54 ± 2.35 , respectively); however, no significant difference was found ($p =$

0.957). This may be due to the fact that the women in the study were older than the men (average age 70.5 years versus 62.7 years), which implies that age is one of the factors contributing to pain.

Some studies found that women did indeed experience higher levels of post-operative pain. Women have been found to be more sensitive to pain than men, experienced higher pain intensity and sensation compared to men, and required more analgesia than men (Aubrun, Salvi, Coriat, & Riou, 2005; Fillingim, King, Ribeiro-Dasilva, Rahim-Williams, & Riley, 2009; Keogh, 2006). For example, a large study in France that assessed acute post-operative pain in post-anaesthesia care units among 4,317 patients who had undergone various surgical procedures found that female gender was significantly associated with reporting severe pain (VAS > 60mm, when comparing females to males (63% versus 57%, $p < 0.001$) (Aubrun, et al., 2005). Similarly, findings in a study of patients who had undergone knee arthroscopic procedures in the USA found that 84% of women who underwent the procedure experienced at least moderate post-operative pain compared to 57% of men. In that study, women required analgesia as early as 14.5 minutes post-procedure compared to men, who first required it at 18 minutes ($p = .003$) (Rosseland & Stubhaug, 2004). Furthermore, moderate to severe pain was reported by more women than men up to two years after total knee arthroplasty (Singh, Gabriel, & Lewallen, 2008).

Women who reported having higher pain levels than men consumed higher doses of morphine after various types of surgery (Aubrun, et al., 2005; Cepeda & Carr, 2003). Similarly, a retrospective review of 1736 patients' records found that women also required early analgesia as soon as they awakened from general anaesthesia (Mei et al., 2009) and also required more analgesia than men. Possible explanations for this finding might be the influence of gonadal hormones factors (Aloisi, 2003) as well as

neurobiological factors, which relate to emotional and cognitive characteristics (Keogh, 2006).

The above findings need to be considered in the context of the studies limitations, which may cause the results to be biased and unreliable. For instance, the proportion of female and male participants was not equal (Rosseland & Stubhaug, 2004). Moreover, many of the above studies used convenience sampling and lacked control over confounding variables (Cepeda & Carr, 2003; Gramke, et al., 2009; Mei, et al., 2009). All the studies involved a particular procedure with selected groups of patients; therefore, the findings are not able to be generalised to all patients. The distribution of patients and types of surgery involved in the study by Aubrun et al. (2005) was not equal and that may have affected the analyses of the data; furthermore, the control for the confounding factors was not clearly mentioned in the study. The inherent differences in the types of procedures, such as some being day-cases and others being procedures that required patients to stay overnight or longer, may have also contributed to disparities in the findings.

2.4.2 Age

Age is another factor that is related to how patients experience pain. It has been suggested that the differences in pain levels between younger and older patients are due to differences in physical status, previous pain experienced and medications used (Gagliese, Gauthier, Macpherson, Jovellanos, & Chan, 2008). A recent systematic review (Hui, et al., 2009) revealed that age was one of the predictive factors for post-operative pain, although results were mixed. Of the 12 articles reviewed, six articles found a negative correlation between age and post-operative pain. This suggests that younger patients experienced higher post-operative pain intensity. Only one article found a positive correlation and five articles found no correlation. That there were no

relationships between age and post-operative pain identified across the five studies may have been attributed to small sample sizes and therefore these studies lacked the power to detect statistical differences.

A cross-sectional study conducted among 648 patients undergoing various day-case surgeries in the Netherlands showed that patients under the age of 45 years experienced higher levels of acute pain (VAS > 40mm) from day one until day four post-surgery compared to patients who were above 60 years (Gramke, et al., 2009). Pain intensity was assessed using a VAS after one to two hours post-operative, with continuing completion by patients at home using a pain diary. Similar results, with young people reporting more pain, were also found in a study using a telephone survey after gynaecology surgery (Bandyopadhyay, Markovic, & Manderson, 2007). The study was conducted in Australia among 325 women and identified that women aged between 26 to 35 tended to report more pain within the 48 hours following their discharge from the hospital compared to women aged 46 years and above (Bandyopadhyay, et al., 2007). One suggestion for these differences is that pain interferes with the activities of women aged between 26 to 35 as they start to work and do many activities after discharge, while women who are 46 years and above are more likely to be less active at home (Gramke, et al., 2009).

In addition, analgesic consumption after surgery is also higher among younger patients compared to older patients. A cross-sectional study among 246 post-general surgery patients in Canada found that younger patients (below 60 years) used more intravenous patient-controlled analgesia (PCA) compared to older (60 years and above) surgical patients (Gagliese, et al., 2008). A retrospective study in Germany examined the incidence of patients experiencing pain in need of intervention in the post-anaesthesia care unit soon after awakening from general anaesthesia and reported that age was an

independent risk factor for this kind of pain (Mei, et al., 2009). Overall, the older patients experienced less pain and required less analgesia compared to the younger patients. Such differences may be attributed to the notion that older people may have some limitations in their social interaction, deterioration in physical, physiological and psychological processes (Hui, et al., 2009; Prowse, 2007), and are reluctant to use current technology such as PCA machines (Gagliese, et al., 2008). Therefore, specialised acute pain management is required as older patients have complex pain management needs (Prowse, 2007).

Again, there are some limitations in the above studies. For example, the use of non-probability sampling (Bandyopadhyay, et al., 2007; Gagliese, et al., 2008; Mei, et al., 2009) may have limited the ability to generalise the results of these studies. In addition, the gathering of information from phone surveys and interviews may have been affected by factors in the home environment such as noise (Bandyopadhyay, et al., 2007).

2.4.3 Psychological Factors

Psychological factors, which include anxiety and distress, are perceived as being related to post-operative pain (Hui, et al., 2009). In addition, pain catastrophising (Granot & Ferber, 2005; Papaionnou et al., 2009; Pavlin, Sullivan, Freud, & Roesen, 2005), self-distraction and pain coping strategies have also been correlated with post-operative pain (Hui, et al., 2009). Pain catastrophising is defined as negative thoughts by the patient about the pain that they may actually experience (Papaionnou, et al., 2009). Of the 48 articles reviewed by Hui et al. (2009), 15 articles suggested that psychological factors, particularly anxiety, were among the most common predictors of post-operative pain, particularly among patients undergoing gastrointestinal, obstetric and gynaecological surgery.

The relationship between anxiety and post-operative pain was observed among women undergoing major abdominal surgery in the USA (Kain, Sevarino, Alexander, Pincus, & Mayes, 2000). Women undergoing abdominal hysterectomy often experienced heightened anxiety and distress before their surgery and experienced significantly higher levels of pain within two hours immediately after operation ($r = .35, p < 0.01$) as well as during day one and two post-operative in the ward ($r = .29, p < 0.05$) (Kain, et al., 2000).

Similar results about the relationship between post-operative pain and psychological distress were also found by Cohen, Fouladi and Katz (2005). Their longitudinal prospective study was conducted in Canada and measured psychological distress symptoms using the Mental Health Inventory, one week before abdominal and gynaecological surgery. Psychological distress symptoms were strongly associated with a higher pain score at two time points, namely, 48 hours and four weeks after surgery ($p < 0.04$ to 0.008) (Cohen, et al., 2005). A longitudinal descriptive study in Sweden among 155 men with post-radical prostatectomy reported that the patients who had pre-operative anxiety and depression suffered higher post-operative pain levels, and that their post-operative anxiety and depression still remained as long as three months after the surgery (Ene, Nordberg, Johansson, & Sjostrom, 2006). Hence, pre-operative anxiety and depression are considered to be influential factors that affect patients psychologically while enduring post-operative pain (Katz, Poleshuck, et al., 2005).

In contrast with the findings of the studies discussed above, the psychological problems of anxiety and fear were not associated with acute post-operative pain in day-case surgery patients (Gramke, et al., 2009). The types of day-case surgery could be considered to be minor and less complex, which would have contributed to this finding. Furthermore, patients in this study required no in-ward admission. In comparison,

patients with major problems which involved complex surgery and were hospitalised for several days were likely to have high levels of anxiety. That study was conducted in 648 patients who were undergoing several types of day-case surgery, including ophthalmology, plastic surgery, orthopaedics and gynaecology. The pain scores were assessed by a researcher using VAS at one and two hours post-operative and at discharge. Pain scores then continued to be self-recorded by the patients in a diary at particular times of day one until the end of day four post-operative. The diaries were returned to the researcher in special prepaid envelopes.

There are several limitations in the above-mentioned studies. For instance, many of these studies used non-probability sampling methods and thus lacked control over the confounding variables (Ene, Nordberg, & Johansson, 2005; Kain, et al., 2000). A longitudinal design resulted in subject attrition (Cohen, et al., 2005; Ene, et al., 2006). For instance, there was a 10% loss at the three months follow-up in the study by Ene et al. (2006). Thus, these factors threatened the internal validity and contributed to sampling error and bias, therefore limiting the generalizability of the findings.

2.4.4 Type of Surgery

The type of surgery has also been identified as a predictor of post-operative pain. Major surgery, which involves a higher degree of tissue injury, may also contribute to a higher intensity of post-operative pain. A systematic review by Hui et al. (2009) identified various types of surgery, namely, abdominal (three studies), orthopaedic (two studies) and thoracic (one study) surgeries as the ones that correlated with higher post-operative pain. Abdominal and orthopaedic surgeries that involve deep tissue incision have also been identified as the types of surgery that result in greater pain intensity (Chung & Lui, 2003; Mei, et al., 2009) followed by surgeries such as head and neck, peripheral vascular, urologic (Mei, et al., 2009), thoracic and dermatology, whereas

ophthalmology surgery correlated with lower post-operative pain (Chung & Lui, 2003). In addition, major and emergency surgeries were related to higher analgesic consumption suggesting a higher level of pain experienced by patients (Hui, et al., 2009).

Some limitations have been identified in the above studies, such as an unrepresentative distribution of types of surgery with for example abdominal surgery representing 36.4% of the sample while dermatological surgery constituted only 2% of the sample; thus, these findings may be confounded by selection bias (Chung & Lui, 2003).

2.4.5 Summary

In summary, many factors that appear to contribute to post-operative pain have been investigated. Factors such as gender, age, psychological issues and types of surgery have been found to be significantly influential in post-operative pain. Although they have been identified in previous studies, there are still many elements that need to be addressed in future research. Moreover, most studies have been conducted in Western contexts and research on how culture influences post-operative pain is almost non-existent. The next section discusses the possible influence of culture on pain.

2.5 Culture, Ethnicity and Pain

It has been proposed that culture influences the individual pain experience, yet little research has been conducted to quantify this relationship. Many pain studies (both clinical and laboratory) have focused on the differences in pain behaviours and attitudes between cultures. Other studies have examined the implications of culture and ethnicity on healthcare disparities. Gaining a deeper understanding of culture and pain underpins the biocultural model (Bates, 1987). The model integrates social learning aspects and social comparison theories into certain aspects of the gate control theory developed by

Melzack and Wall in 1965. The biocultural pain model is also based on the findings from an earlier study on culture and pain by Zborowski in the 1950s. This particular study found that some individuals' behavioural reactions towards pain were based on their lessons from, and observations of, the members of their ethnic group.

2.5.1 Definition of Pain and Culture

There are various definitions of “culture” used in different study fields. Concerning pain, the definition of culture expressed by Davidhizar and Giger (2004) is among the most applicable in understanding the influence of culture on pain. Davidhizar and Giger (2004) define culture as being “shaped by the values, beliefs, norms, and practices that are shared by members of the same cultural group. Culture is a significant force in shaping beliefs and behaviours, giving meaning to the pain experience and influencing the way it is expressed” (p. 49). Furthermore, Lipton and Marbach (1984) espouse that culture can easily influence the way pain is managed by patients. The term “ethnicity” is closely related and frequently applied interchangeably with culture. It is described as the identity of a group of people who, on the basis of similar characteristics, share a common language, beliefs, behaviours, history, experiences and culture. Anderson, Green and Payne (2009) further qualify the term ethnicity as the factor that shapes an ethnic group and guides them towards their own identity and values.

2.5.2 Studies on Pain and Culture

Various studies on culture and pain have been conducted based on clinical and laboratory studies. The first clinical study was explored by Zborowski in the early 1950s in the USA (Lipton & Marbach, 1984). This study used observation and informal interviews to explore pain attitudes and behaviours among 146 patients from four ethnicities, namely, Irish, American, Italian and Jewish. The results showed that Jewish

and Italian patients often expressed their pain by crying, complaining and demanding attention. These reactions were completely opposite to their counterparts, that is, the Irish and American patients who preferred to conceal their emotions. These results suggested that social learning and cultural environment provided the meaning, beliefs, attitudes and behaviours of the person in relation pain. Unfortunately, as only male patients were included in this study, the findings may not be applicable to female patients from the same ethnic groups. Furthermore, the measurement tools were not clearly discussed in the study, which limits the ability to replicate the study.

A follow-up study was conducted to examine possible factors that influenced the difference in pain behaviour among different cultures (Lipton & Marbach, 1984). The study focused on facial pain and reported results from 476 patients who were African American, Irish, Italian, Jewish and Puerto Rican. The findings showed that all of these ethnic groups had similarities in expressing their pain; however, the factors contributing to their pain were different. In general, the factors for pain in African American patients were influenced by the degree of medical acculturation, Irish patients were influenced by the degree of social assimilation, Italian patients were influenced by the duration of pain, and Jewish patients were influenced by the level of psychological distress (Lipton & Marbach, 1984). In a related study, the influence of ethnicity on quality of life among Hispanic, Caucasian and African American cancer patients showed that Hispanics tended to be less concerned about pain while experiencing the worst form of pain and experienced the lowest quality of life compared to the other ethnic groups (Juarez, et al., 1999).

Various studies conducted in laboratory settings have revealed that pain experiences are influenced by culture and ethnicity. The assessment of the pain threshold for orofacial areas among university students and staff from Belgium and Japan showed that

Japanese women had the lowest tactile detection threshold and filament-prick pain detection threshold, whereas Belgian men had the highest value (Komiya, Kawara, & Laats, 2007). Another study noted similar findings among White British and South Asian people in a university setting, who showed that South Asian people experienced lower pain in tests for heat pain threshold and greater pain in tests for heat pain intensity than White British people (Watson, Latif, & Rowbotham, 2005). Yet another study found that two ethnic groups, African Americans and Caucasians, had the same tolerance towards general pain. Both ethnic groups were similar in response to multiple experimental pain stimuli; heat pain, cold pressor pain and ischemic pain (Campbell, Edwards, & Fillingim, 2005). In these laboratory studies, all the participants were healthy people; therefore, the findings may not be able to be applied to people with disease and illness. Patients with diseases and illnesses are influenced by psychological factors or existing pain which might provide different findings.

The studies on culture and pain have also revealed disparities in pain management practices, particularly concerning analgesic prescriptions among minority groups. Several factors may influence these practices, including patients' attitudes, language barriers, heterogeneity of groups and financial problems (Ezenwa, Ameringer, Ward, & Serlin, 2006). A retrospective cohort study conducted in a hospital emergency department in Atlanta disclosed that only 57% of African American patients received adequate analgesia compared to 74% of White American patients ($p = .01$). Moreover, using multiple logistic analysis and after controlling for variables such as insurance status and total time in emergency department, only the African American ethnic variable remained as a factor for less analgesia received in the emergency department (Todd, Deaton, D'Adamo, & Goe, 2000).

A similar study, which was carried out among post-abdominal surgical patients in Australia, achieved comparable findings. This retrospective study aimed to determine the influence of patient's demographic data including ethnicities on the prescription of patient-controlled analgesia (PCA) or intra-muscular analgesia for post-operative pain. This research concluded that the numbers of patients from ethnic minorities (Lebanese, Italians, Vietnamese and Chinese) who received PCA were lower than for Australian-born individuals, and their ethnic origin had a significant influence on PCA prescriptions ($p = 0.034$) (Salamonson & Everett, 2005). It was suggested that communication barriers between these patients and their physicians, pain assessment and physician decision-making may have influenced the prescription and administration of PCA to these groups of patients (Salamonson & Everett, 2005). However, this study did not report any data regarding patients' pain intensity which may indicate the difference in PCA prescription and administration. The retrospective designs and analyses of the secondary data used in both studies discussed above may suffer from recall bias as some data extracted from the existing reports was not well documented (Salamonson & Everett, 2005; Todd, et al., 2000). Moreover, data from secondary reports was based on other persons' assessment, which may be incomplete or inaccurate. Finally, in the study by Todd et al. (2000), no pain levels were measured and used to describe the patients' pain condition, which may influence the analgesic prescription.

One particular study showed that ethnicity influenced patients' pain and analgesic prescriptions (Tan, Lim, Teo, Goh, & Law, 2008). This post-operative pain study was conducted among women in Singapore who had undergone a lower uterine segment caesarean section procedure. The results indicated that women from the Indian ethnic group, the minority ethnic group in Singapore, received a higher amount of analgesia compared to the majority Chinese and Malay ethnic groups. The findings from this

study also showed significant differences in pain levels and analgesic consumption between the three ethnic groups. However, the distribution of ethnic groups was not representative of the general population, so the findings cannot be generalised. Furthermore, factors such as psychological and socio-cultural beliefs were not explored and may have been a confounding factor which needed to be further explored.

Interchangeable with culture, religious beliefs may play a significant role in pain experience and pain coping strategies (Chen, Miaskowski, Dodd, & Pantilat, 2008; Suza, Petpichetchian, & Songwathana, 2007). In Chinese culture, pain perception is complex and is related to the philosophical and religious belief of Taoism/energy theory, Buddhism and Confucianism. For instance, from a Buddhist perspective, pain is a part of life. A person who can cope with the pain calmly, without becoming emotionally distressed, can attain greater states of being. Therefore in Chinese culture, patients are generally more stoic and they seldom express a reaction to pain unless it becomes intolerable (Chen, et al., 2008).

Research on religion in relation to post-operative pain is very limited and the findings are inconsistent. A descriptive comparative study among abdominal and orthopaedic surgery patients from the two main ethnicities in Indonesia (Suza, et al., 2007), Java and Batak showed a significant relationship between culture and pain intensity, with Batak patients experiencing more pain than Javanese patients. This study involved surveys and interviews among 63 Javanese and 60 Batak. However, the findings from the survey showed that patients' perceptions of pain intensity did not differ between Christian and Islam patients (Muslim Batak versus Christian Batak). Moreover, the results showed no statistical difference between pain intensity among Javanese patients who were Muslim. However, the findings from the interviews indicated that pain perception and pain coping strategies among Java patients were clearly influenced by their religion, Islam.

As a Muslim, they believed that pain was a test from God to test their patience level and that a person who had a higher level of patience would be able to control the pain.

2.5.3. Summary

In summary, previous studies have revealed that culture has a strong influence on how some individuals deal with pain; however, few studies have empirically described the influence of culture on patients' post-operative pain experiences. The influence of culture on pain experiences, attitudes and behaviours has, to date, been fleetingly explored. Yet the influence of culture on health care may culminate in disparities and inappropriate analgesic prescription because of a lack of participation among the patients who are culturally different from their health care providers. The influence of culture and patients' participation in their care management is discussed further in the next section.

2.6 Patient Participation

People from different ethnic backgrounds may have diverse attitudes, behaviours and knowledge of pain and illnesses, and may speak a different language to the health care providers. These factors may contribute to disparate levels of patient participation in health care. However, few studies have examined the influence of culture on patients' participation, particularly in relation to pain management. Generally, previous studies have described patient participation in medical treatment decision-making but very few in nursing contexts.

2.6.1 Definition of Participation and Type of Participation

Traditionally, patients rely solely on health care providers to assist them with health care-related decision-making. However, it is becoming more common for patients to

participate in their healthcare issues and decision-making (Biley, 1992; Cahill, 1998). The term “patient participation” refers to patient involvement, collaboration or partnership and is widely used in many studies (Cahill, 1998; Street, Gordon, Ward, Krupat, & Kravitz, 2005). According to Brearley (1990), patient participation can be defined as “getting involved or being allowed in a decision making process or in the delivery of a service or the evaluation of a service, or even simply being consulted on an issue of care” (p. 4).

Cahill (1998) categorised this type of participation as active, collaborative or passive. “Active” participation solely depends on the patients’ preferences, “collaborative” participation results from the sharing of preferences between patients and nurses or physicians, and “passive” participation is about being dependant on nurses’ or physicians’ preferences (Cahill, 1998). These participation styles are displayed by patients as frequently asked questions, offered opinions and expressed concerns (Street, Voigt, Geyer, Manning, & Swanson, 1995), communication with healthcare providers, and decision-making (Fallowfield, 2008).

Most of the time, patient participation results in compliance and satisfaction in managing their healthcare (Street, et al., 2005). Patients who often take an active role are more satisfied with the care, receive more information and support from their physicians, are committed to treatment plans, have a better understanding of treatment options and experience greater improvement in health compared to the passive ones (Street, et al., 2005). For example, a study of anxiety and depression among early breast cancer patients showed that the patients experienced less depression and anxiety when they were given choices before and after their surgery (Morris & Royle, 1987). In contrast, the patients were still depressed and anxious up to 12 months after the

operation when they were not given choices about their surgery (Fallowfield, Hall, Maguire, & Baum, 1990).

2.6.2 Studies on Patient Participation

Previous studies on patient participation have mostly involved participation in decision-making for medical treatment or healthcare. The findings indicate that not all patients decided to take an active role in their healthcare. A national cross-sectional survey involving 2,750 public patients in the United States aimed to assess public preferences in healthcare participation and revealed that only 4% of patients were likely to be active in their health care by their own choice, but 96% preferred their physicians to provide them with choices and an opinion. Among this group, more than half (52%) preferred to leave the final decision to their physicians and 44% relied wholly on physicians' information (Levinson, Kao, Kuby, & Thisted, 2005).

Similar findings have been made in relation to patient participation in surgical decision-making. A survey by Larsson et al. (1989) in Sweden indicated that among 666 patients who were on the waiting list for elective surgical and orthopaedic operations, only 8% of operations were self-requested by patients, whereas 41% of patients agreed to an operation as a result of a shared decision between the patient and doctor, and about 29% solely relied on their doctor's decisions. In contrast, a study conducted among 611 Canadian patients with stage I and II breast cancer reported different findings. Most patients preferred more active roles in their general health and also in cancer-related decisions and treatment (Sabo, St-Jacques, & Rayson, 2007). The differences in findings between the studies by Larsson et al. (1989) and Sabo et al. (2007) may be due to differences in the patients' demographic backgrounds. Sabo et al. (2007) revealed that patients with higher income and graduate education were most likely to play an active role in decision-making compared to patients with lower income and with

elementary school education; yet differences in these fundamental characteristics were not clearly articulated by Larsson and colleagues (1989).

One observational study which examined pain management among 53 patients with chronic kidney disease and 14 nurses showed similar results. Among 103 pain activities observed, 78 patients displayed a passive role in making decisions about their treatment, six participated actively, while the rest collaborated with their physicians in deciding the best treatment or pain management program (Manias & Williams, 2008). The activities observed involved interaction and communication with nurses such as asking for the analgesic and expressing pain. Conversely, a Finnish study that focused on participation in cancer treatment and nursing care found differences (Sainio & Lauri, 2003). Patients were most likely participating in nursing care activities particularly in relation to their hygiene, food and sleep but passively responded in regard to medication. This study reported that almost 80% of patients played a passive role in treatment decision-making (Sainio & Lauri, 2003).

A systematic review that compared patients from various ethnic groups in making their end-of-life decision showed that Asians and Hispanics preferred to involve their family in decision-making more than Westerners (Kwak & Haley, 2005). Many of the above-mentioned studies were conducted in relation to medical decision-making treatment and very few in nursing contexts.

Several factors have been identified that enhance patient participation in their healthcare. A grounded theory study conducted interviews with post-operative patients about their participation in nursing care. The findings showed that the patients who participated in their care routines were among those who were well enough. They were actively involved in daily activities such as choosing food, exercises and movements (Biley, 1992). Another grounded theory study by Henderson (1997) portrayed the nurse-

patient relationship as a fundamental concept in enhancing patients' participation in nursing care. Those who chose to become involved tended to show trust, had a good rapport with their carers, reinforced positive attitudes, sustained nurse-patient contact, and interacted meaningfully with their carers. In addition, aspects of patients' background such as being younger, more educated and female were linked with a more active role in participation (Levinson, et al., 2005; Sainio, Eriksson, & Lauri, 2001).

There are also factors that hinder patients from participating in their healthcare. Among these factors can be conditions such as tiredness, illness and mental health problems (Sainio, et al., 2001), confusion and dementia (Henderson, 1997) and shyness (Sainio, et al., 2001). When any of these factors arise, they limit the collaborative process between the patients, their physicians and nurses. Jewell (1994) found that limited time, a negative attitude and too much task-oriented nursing also contributed to the occurrence of this problem. In addition, Biley (1992) suggests that organisational barriers between the patients and their health carers, ward routines, rigid visiting hours and the patients' bed locations (Manias & Williams, 2008) also prevented patients from taking part in decision-making.

2.6.3 Summary

In summary, extensive work has explored patients' participation in healthcare, for instance, cancer patients and their participation in cancer treatment decision-making (Fallowfield, Maguire, & Baum, 1990; Katz, Lantz, et al., 2005; Morris & Royle, 1987; Sabo, et al., 2007; Street, et al., 1995), participation in medical consultation (Street, et al., 2005), healthcare preferences (Levinson, et al., 2005), pain and management of chronic disease (Manias & Williams, 2008), nursing care (Biley, 1992; Henderson, 1997) and culture (Kwak & Haley, 2005). However, as Cahill (1998) reports, although many studies have been conducted in the physician-patient context there are limited

studies in nursing care contexts. Based on this above literature review, there is little information regarding the relationship between culture, patient participation and pain experience. Moreover, no studies have described patient participation in pain management in an Asian context. Therefore, this study was designed to address this gap in the literature.

2.7 Aim of Study

Previous studies have shown that patients still experience at least moderate pain after their surgery. Thus, post-operative pain remains a significant issue. In addition, numerous factors have been shown to have a strong influence on post-operative pain; however, there is limited information about the relationship between culture, patient participation and post-operative pain experience. This study is designed to address this lack of evidence. Moreover, previous post-operative pain studies have been conducted primarily in Western and European contexts and have not explored the full impact of culture and ethnicity. There is a dearth of research that has explored other cultures, and those in Asian countries are extremely limited. Therefore, the present study was conducted in Malaysian hospitals with the aim to determine the relationship of culture on pain experience and patient participation in pain management. Malaysian women who were undergoing breast cancer surgery were selected as study population. Although the results regarding the influence of gender on pain are inconsistent, it appears that gender may influence the pain experience and perception. Therefore it is acknowledged that these results may not be generalisable to men, but given that breast surgery is the most common surgery performed in Malaysia we considered this group significant in size and therefore appropriate to investigate. What follows is a description of the methods used in this study.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

In the previous chapter, the literature concerning post-operative pain, its management and factors influencing patients' pain experience were reviewed. In particular, the potential influence of culture and ethnicity on patient participation has been highlighted. This chapter reports the methods that were used to answer the research questions. First, the research questions are presented. Following this, explanations of the conceptual framework, research design, setting, selection of study population, sample size, data collection procedures, measures, data analysis, and ethical considerations are provided in detail.

3.2 Research Questions

The overall aim of this study was to determine the relationship between culture and pain experience and patient participation in pain management after breast cancer surgery. Subsumed in this aim were the following questions:

- 3.2.1 What is the relationship between culture and the pain experience?
- 3.2.2 What is the relationship between expected pain experience and actual pain experience?
- 3.2.3 What is the relationship between culture and type of analgesic?
- 3.2.4 What is the relationship between culture and total analgesic consumption?
- 3.2.5 What is the relationship between pain experience and patient participation in pain management?

3.2.6 What is the relationship between culture and patient participation in pain management?

3.3 Conceptual Framework

In the context of pain, the biocultural pain model (Bates, 1987) proposes that the experience of pain is determined by social learning and the social comparison process that shapes the perceptions of individuals within a particular culture. These processes influence a person's perception of, and response to, physical signs and symptoms. In this study, it is hypothesised that different cultural groups will express their pain behaviours differently. In other words, culture influences how people express pain, manage their pain and consume analgesia (Figure 1).

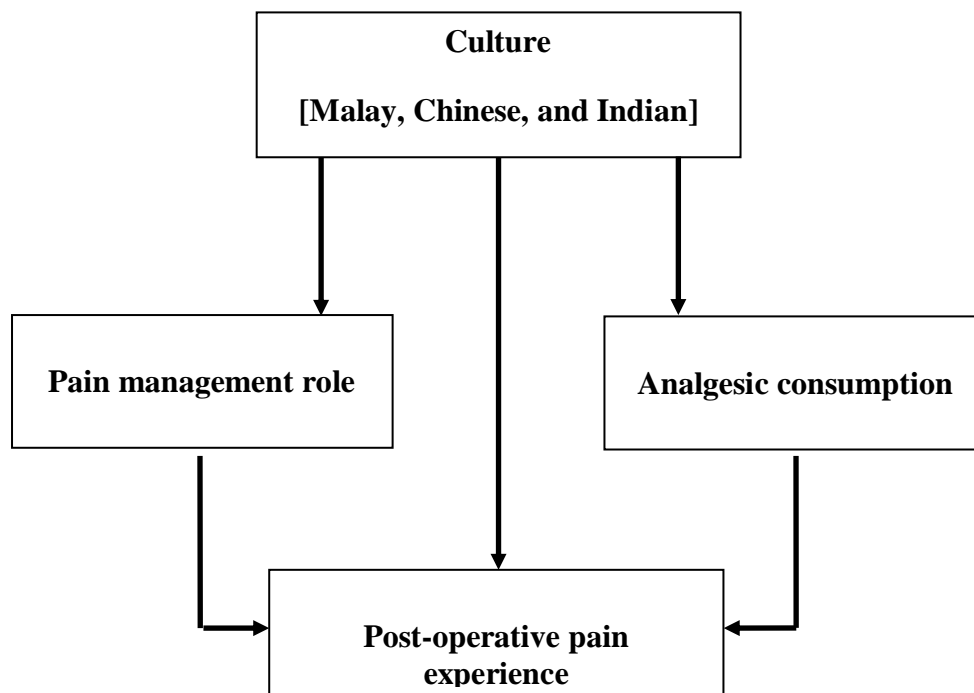


Figure 1: Conceptual Framework of study (based on the Biocultural pain model by Bates, 1987)

3.4 Design

A cross-sectional descriptive design was used in this study. This design is suitable for data collection in one time period (Polit & Beck, 2012). Data collection was conducted from February until July 2011. In this study, data were collected before the operation and in the acute post-operative period at 4, 24 and 48 hours after the operation.

3.5 Setting

This study was conducted in two government tertiary hospitals in Malaysia. Geographically, Malaysia is situated in Southeast Asia and is among the Asian countries that have diverse ethnic groups. The population of Malaysia is 27.2 million, comprising three main ethnic groups: Malay (54.2%), Chinese (25.3%) and Indian (7.5%). Thirteen percent of the Malaysian population is comprised of other ethnic minorities (Ninth Malaysian Plan, 2006-2010). The Malay language is the national language of Malaysia and English is widely spoken.

The two government tertiary hospitals selected for the study were Hospital Kuala Lumpur (HKL) and Hospital Putrajaya (HPJ). Both hospitals are also known as Federal Territory hospitals and are situated in the state of Selangor, which has the highest population of all the states in Malaysia. HKL, with 2,331 beds, is the largest hospital in Malaysia under the Ministry of Health and is considered to be one of the biggest in Asia. HKL is located in the Federal Territory of Kuala Lumpur. HPJ is located in the government administrative area of the Federal Territory of Putrajaya and is located approximately 40km from HKL. HPJ has 272 beds, and similar to HKL, it has a specialty unit for breast and endocrine disease. This unit is an extension of HKL due to the high number of breast cancer cases seen in HKL. Both hospitals are major tertiary referral hospitals for breast cancer sufferers in Malaysia.

3.6 Study Population

Women who were undergoing breast cancer surgery, namely lumpectomy, mastectomy, radical mastectomy or mastectomy with breast reconstruction, were recruited in this study. Currently, breast cancer surgery is the most common cancer surgery in Malaysia due to the rise in the incidence of breast cancer in Malaysia. Breast cancer is also the most common cancer in Malaysia. According to the Malaysian National Cancer Registry, breast cancer accounted for 18.1% of all cancer cases registered among the Malaysian population in 2007. During this period, there were 3,242 new cases of female breast cancer reported. Of these cases, the distribution based on ethnic groups was higher among Malay (44.2%), followed by Chinese (41.4%), and Indian (9.2%) citizens. The incidence of breast cancer was highest among Chinese where the age-standardised incidence rate (ASR) was 38.1 per 100,000 population, followed by Indian (33.7 per 100,000 population) and Malay (25.4 per 100,000 population). The peak ASR at the mean age was 50-59 years. Malay women had a more advanced stage of breast cancer compared to other ethnic groups with 50% to 60% in the late stages (Hisham & Yip, 2004).

3.7 Inclusion and Exclusion Criteria

The following inclusion and exclusion criteria guided the recruitment of participants in this study.

3.7.1 Inclusion Criteria

- i. Women who were Malay, Chinese and Indian (both parents same ethnicity).
- ii. Women aged 18 years and over.
- iii. Able to read and understand the Malay language or English.

- iv. An expected length of stay (LOS) in hospital for at least two days after surgery. Commonly, patients having a lumpectomy stayed in the ward for at least two days. Patients undergoing surgery such as partial mastectomy, total mastectomy, and mastectomy with breast reconstruction, stayed at least three days.

3.7.2 Exclusion Criteria

- i. Patients with a cognitive disorder, which limited their understanding or response to questions.
- ii. Patients who were in palliative care, and were already receiving other analgesic for pain control (e.g. morphine syrup). This situation may have influenced these patients' perceptions of pain and thus created bias for pain measurement and preferences for their role in pain management.

3.8 Sampling and Sample Size

Consecutive sampling was used for selecting the participants. All patients admitted for breast cancer surgery and who met the inclusion criteria were approached. For this study, *a priori* power analysis was used to estimate the required sample size. The sample size for this study was based on the rule of thumb sample size calculation in which data from 10 participants was collected for each variable that was examined in the analysis (Green, 1991). The number of variables in this study was 17, therefore the total number of participants required for this study was 170. Given the challenge of recruiting sufficient participants, the sample size required could not be met, and thus a post-hoc sample size was used. In post-hoc calculation with the level of significance set at $p < 0.05$, a sample size of 76 would be sufficient to detect a correlation coefficient of 0.25 (Soper, 2010). Therefore, a minimum sample size of 76 was required.

3.9 Measures

The dependent variable for this study was the worst actual pain score that participants experienced during the post-operative period. The independent variables included demographic data (age, ethnic group, religious status, level of education, monthly income), cancer status and surgical data (diagnosis of cancer, history of previous cancer and surgery, type of surgery, length of surgery and the American Society of Anesthesiologists [ASA] category), analgesic data (type of analgesic and total amount of analgesic), participant preferred role as well as presence of family member (any person present during data collection).

Three types of measures were used to obtain the data. A Visual Analogue Scale (VAS) was used to assess participants' pain scores. The Control Preferences Scale (CPS) was used to determine preferences for participation in pain management, and medical and medication records were reviewed for general operative and analgesic information. A description of each measure is detailed below.

3.9.1 Visual Analogue Scale (VAS)

The pain experience of participants was assessed through their pain intensity. The pain intensity was measured by a score on a VAS. Two types of pain scores were assessed: *expectation* of worst pain score and *actual* worst pain experienced. The VAS is a 100mm horizontal line with one end anchored at "0" representing "no pain", and the other end "100" representing the "worst pain possible". The participant was asked to rate her score within the scale to indicate her pain experience. The VAS is widely used in acute pain research and has a reliability of 0.85 to 0.99 (Coll, Ameen & Mead, 2004; Wewers & Lowe, 1990). The VAS is commonly used for post-operative pain assessment in different cultures and also has the advantage of not requiring an extensive

vocabulary or knowledge of English, and can be administered in the participant's native language (Faucett, Gordon, & Levine, 1994).

3.9.2 The Control Preferences Scale (CPS)

The CPS was created by Degner and Sloan (Degner & Sloan, 1992) for breast cancer patients with the aim of determining the patient's preferences in decision-making participation in breast cancer treatment. The CPS was developed based on unfolding theory, which posits that an individual's preference corresponds to their most preferred role on a scale, and this preferred role can be determined by presenting successive paired comparisons of CPS cards that fall along the scale.

The CPS was tested for variability and reliability using an unfolding analysis in which the scale met Coombs's criterion of 50% plus 1 participant falling on the hypothesised dimension (active preference role) (Degner, Sloan, & Venkatesh, 1997). This scale has been used in many studies, particularly in oncology and has proven to be valid, reliable and easy to administer (Bruera, Willey, Palmer, & Rosales, 2002; Florin, Ehrenberg, & Ehnfors, 2006; Hawley et al., 2009; Hawley et al., 2007; Katz, Lantz, et al., 2005; Lam, Fielding, Chan, Chow, & Ho, 2003; Sabo, et al., 2007).

The CPS is a card sort technique with five options for the role of the participant (A and B = active, C = collaborative, D and E = passive). There are several techniques in presenting the CPS cards to participants. In this study, the cards were shown in pairs to participants with 10 paired comparisons (AB, BC, CD, DE, AC, BD, CE, AD, BE and AE) and participants had to select the most preferred role in each comparison. Based on the responses to the comparisons, the cards were sorted into the order of preferred roles from "most preferred" to "least preferred". Eleven valid sequences of preferred roles were possible, specifically: ABCDE, BACDE, BCADE, BCDAE, CBD AE, CDBAE,

CDBEA, CDEBA, DCEBA, DECBA, and EDCBA. Each participant's preferred role was then categorised (Table 1)

Table 1: The Categories in the Control Preferences Scale

Preference category	Card sort option
“active-active”	ABCDE
	BACDE
“active-collaborative”	BCADE
	BCDAE
	CBDAE
	CDBAE
“collaborative-passive”	CDBEA
	CDEBA
“passive-collaborative”	DCEBA
“passive-passive”	DECBA
	EDCBA

In the present study, some modifications of phrases used were required in order to determine the preferences for participation in pain management decisions. Previous studies by Florin, Ehrenberg and Ehnfors (2006) and Cox, Britten, Hooper and White (2007) also made minor modifications of some phrases to meet their study objectives (Appendix A).

3.9.3 Medical and Medication Records

The participants' medical record was used to obtain data such as type of surgery, length of surgery and ASA level. The medication record was used to determine the type of analgesic, and total amount of analgesic.

3.10 Type of Variable and Level of Data

The variables included in this study are presented in Table 2, with an outline of the levels of data and the operational measures that were used in the data analysis.

Table 2: Level of Data and Data Analysis of Variables

Variable	Level of data	Level of data used in analysis
Age	Continuous	Continuous
Ethnicity	Nominal	Nominal
Religion	Nominal	Nominal
Education level	Ordinal	Ordinal
Total family income (monthly)	Ordinal	Ordinal
Breast cancer status	Dichotomous	Dichotomous
Diagnosis of cancer	String	Dichotomous
Site of current cancer	Nominal	Nominal
Site of previous cancer	Nominal	Nominal
Type of surgery	Nominal	Nominal
ASA level	Ordinal	Ordinal
Length of surgery (minutes)	Continuous	Continuous
Preferred role (CPS)	Ordinal	Ordinal and dichotomous
Pain score (VAS)	Ordinal	Ordinal and dichotomous (50 th percentile cut-off point of pain score)
Presence of family member	Dichotomous	Dichotomous
Type of analgesic	Nominal	Nominal and dichotomous
Total amount of analgesic	Ordinal	Ordinal and nominal (50 th percentile cut-off point of pain score)

3.11 Questionnaire Development and Translation

The questionnaire was prepared in the Malay language (Bahasa Melayu) and English, and both languages appeared on the same form. The questionnaire was divided into five parts: Parts A, B, C, D and E (Appendix B). Part A consisted of demographic data to be completed by the participant. Parts B and C consisted of information regarding breast cancer status, expected pain score and participant preferred role. These were obtained by interviewing participants and were completed before the operation. Parts D and E related to surgical and analgesic prescription. These data were obtained after the operation.

The control preferences scale (CPS) was not available in Malay language. Therefore, each of the role statements of CPS had undergone a translation and back-translation process (Brislin, Lonner, & Thorndike, 1973). These processes were carried out by two experts (Malay and English language instructors). One of three back-translation techniques proposed by Brislin et al. (1973) was used in this study. The technique suggested by Brislin et al. (1973) and most widely used in previous studies required two bilingual personnel to participate in the translation process. One bilingual person was responsible for translating the role statements into the target language and another bilingual person translated them back into the original language.

In this study, the process was undertaken by two bilingual English teachers. The original English version of the role statements was translated into Malay language (Bahasa Melayu) by a qualified English teacher who was also a Malay speaker and who resides in Malaysia. The Malay version of the role statements was then translated into English by another qualified English teacher, without looking at the original version. She is also a native Malay speaker but had been living and working as an English teacher in Australia for many years. The original and back-translated versions of the

role statements were then compared by the student's supervisors for equivalence in language and meaning of words. Several differences between the original and back-translated versions were identified and a meeting with the back-translator was conducted to determine the source of the differences and ensure the Malay version of the role statements was correct. Appendix C presents the details of the outcomes of the meeting.

3.12 Data Collection Procedures

After obtaining the ethical approval, a copy of the approval letter was sent to the Head of the Department of Surgery and ward/clinic manager at each site. The student researcher approached each ward/clinic manager and explained the study.

Following the Malaysian Clinical Research Centre for International Ethical Guidelines for Biomedical Research Involving Human Subjects (2004) (Guidelines 4 and 5), the researcher was responsible for identifying the prospective participants. In this study, prospective participants were identified through the operation list in the surgical clinic and/or surgical wards. Routinely (depending on hospital procedure), the list of patient names for operation was displayed in the surgical clinic and/or surgical wards at least two days before the operation and patients were admitted to the ward for preparation at least one day before the operation. On the day of admission, or a day before the operation, eligible participants who were identified through the operation list were approached by the researcher. The researcher explained the purposes and procedures of the study to potential participants. After the explanation, written informed consent was obtained from the participants who agreed to participate.

Data collection was divided into two phases: 1) pre-operative pain assessment, and 2) post-operative pain assessment. Face-to-face interviews were conducted with a structured questionnaire for both phases.

Data collection was performed in two phases, described in detail as follows.

3.12.1 Data collection for Phase 1: Pre-operative pain assessment

- i. Demographic data (i.e., age, level of education, level of income and ethnic group) were obtained from the interview.
- ii. Participants were asked to rate their expectation of the worst pain score after operation. Participants were informed that the pain assessment would continue at 4, 24 and 48 hours after their operation.
- iii. Participants were asked to determine their preferred role for participation in pain management.
- iv. These interviews took approximately 15 minutes.

3.12.2 Data collection for Phase 2: Post-operative pain assessment

- i. Participants were asked to rate their worst pain score experienced 4, 24 and 48 hours after surgery. This interview session took approximately two to five minutes.
- ii. Information about analgesic use (i.e., type of analgesic, frequency and amount) by participants was obtained from the participant's medical and/or medication record. For participants who were using a patient-controlled analgesia (PCA), the data were obtained from the PCA chart (type of analgesic, and total amount per hour).
- iii. Surgical information (type of surgery and length of surgery) was obtained from the participant's medical record.

During Phase 2, some of the participants were excluded from this study because their surgery was cancelled, or alternatively, some patients were admitted to the ICU. The pain assessment could not be performed because their recovery pathway was different.

3.13 Data Analysis

The *Predictive Analysis Software* (PASW Statistics[®], version 19.0, Chicago, IL, 2010), formerly known as Statistical Package for Social Science (SPSS) 19.0, was used to analyse the data and involved descriptive and inferential statistics. Before undertaking data analysis, the data were cleaned. This involved checking for missing data as well as any outlier values and wild codes (Polit & Beck, 2012). Data cleaning was performed to ensure that all the data were entered without miscoding and reduced the possibility that results may be misreported. Then, the data were assessed for normality and linearity.

Normality tests assessed with Shapiro-Wilk found that all the data were not normally distributed except for age and length of surgery. Therefore, non-parametric statistical tests were used. Descriptive analyses were used to describe the sample in relation to demographic and surgical data (median, interquartile range [*IQR*], frequency and percent), worst pain expected and experienced (frequency and percent), patient participation preferences (frequency and percent), and total amount of analgesic (median, frequency and percent). Data for age and length of surgery are presented as means, standard deviations (*SD*) and range.

Nonparametric inferential statistical analyses used to answer the research objectives were Cramer's *V*, Chi-square test of independence (χ^2), and Kendal's tau-b (τ) (Table 3). The aim of the research was to determine the relationship between cultures on pain experience, analgesic consumption and participant preferred role in their pain management. Cramer's *V* test was used to test the correlation between ethnicities and

pain experiences, and analgesic consumption, while Kendall's tau-b test was used to determine the correlation between expected pain and actual pain experiences. The Chi-square test was used to explore the relationship between culture and patient participation. Kendall's tau-b test was used to determine the correlation between the patient's participation and their pain experiences. Statistical significance was set at $p < 0.05$.

Table 3: Inferential Statistical Tests used to answer the Research Questions

No.	Specific research questions	Variables	Statistical test
1.	What is the relationship between culture and the pain experience?	Ethnicity (nominal) and pain scores (dichotomous)	Cramer's V
2.	What is the relationship between expected pain scores and actual pain scores?	Expected pain scores (ordinal) and actual pain scores (ordinal)	Kendall's tau-b
3.	What is the relationship between culture and type of analgesic?	Ethnicity (nominal) and types of analgesic (nominal)	Cramer's V
4.	What is the relationship between culture and total analgesic consumption?	Ethnicity (nominal) and total amount of analgesic (dichotomous)	Cramer's V
5.	What is the relationship between pain experience and patient participation in pain management?	Pain scores (ordinal) and CPS preferred role (ordinal)	Kendall's tau-b
6.	What is the relationship between culture and patient participation in pain management?	Ethnicity (dichotomous) and CPS preferred role (dichotomous)	Chi-square

3.14 Ethical Considerations

This study sought to investigate women's pain experiences following breast cancer surgery; therefore, it was necessary to obtain ethical approval from all relevant authorities: Griffith University Ethics Committee (HREC) (ref. NRS/23/10/HREC), Medical Research Ethic Committee, Ministry of Health, Malaysia, and Institute for

Health Behavioural Research (IHBR) (ref. NMRR-10-1092-7377), as well as permission from the directors of the selected hospitals (Appendix D).

Four main principles of ethics underpinned every aspect of this study based on the National Statement on Ethical Conduct in Human Research (2007) and International Ethical Guidelines for Biomedical Research Involving Human Subjects (2004). The application of these principles is described below.

3.14.1 Beneficence and Non-maleficence

The student researcher had a responsibility to protect participants from any situation that may expose them to potential harm or discomfort. This study involved a survey with face-to-face interviews using a structured questionnaire and did not involve physical tests that could lead to possible injury. While this study was considered to be low or minimal risk, the researcher ensured that she did not contribute to the participant's distress if they were in pain or discomfort during the interview. If this occurred, the researcher ceased the interview, and ensured that the nurse assigned to care for the participant was made aware of her pain status.

Participants were informed that they had the right to refuse participation without prejudice, and that they also had the right to withdraw from this study at anytime without jeopardising their treatment. Participants were advised orally and in writing that this study may have no direct benefit to them, however, that it may have the long-term benefit of increasing nursing knowledge in this important and under-researched area.

3.14.2 Justice

Only participants who fulfilled the inclusion criteria were selected for this study and they were treated equally throughout the data collection process. Only patients aged 18

years and above were invited to participate in this study as they were able to give permission for participation and this age can be considered mature enough to understand and be responsible for their own condition. All participants were informed about the purpose of the study, the benefits and any potential risks. Only participants who agreed by providing written consent were involved in this study. This is in accordance with the National Statement Chapter 2.2 (2007) which states that participation is voluntary after a participant is given sufficient information and adequate understanding of both the study and the implications of her participation in the study. Permission to access the participant's medical and medication records was also obtained. Those patients who declined to participate in this study were treated similarly and their decision to decline did not affect their care. No consenting patients chose to withdraw from the study.

The participant's privacy was maintained throughout the study process. The researcher ensured that the interview session was not prolonged in order to minimise the potential for participant burden.

3.14.4 Confidentiality

In order to maintain anonymity, the researcher did not obtain or display the participants' names and hospital registration numbers on the questionnaires. The participant's name and registration number were required for follow-up purposes in the post-operative phase of data collection. However, these details were kept separately from the questionnaire forms, and were stored in two separate locked filing cabinets. Each participant was given an identification number that was written on the front cover of the questionnaire for follow-up and data entry. The data were accessed by the student researcher and her supervisors. All the electronic data and information were saved on a password-protected computer, in a room with limited access. The paper questionnaires

will be kept in a locked filing cabinet for a maximum of five years to conform to National Health and Medical Research Council Guidelines (2007) and will then be shredded. The participants' identification and the names of the hospital have not and will not be disclosed during seminar presentations or in publications.

3.14.5 Autonomy

Prospective participants were provided with sufficient information about the study in order for them to provide informed consent (Appendix E). Both verbal explanation and written information were given to prospective participants in the Malay or English language. An informed consent sheet was included as part of the questionnaire and contained information about the study, such as purpose of the study, procedure, benefits, potential risks, compensation and voluntary participation. Participants signed a consent form that indicated their agreement to be involved in this study. The name and contact details (phone number and email address) of the researcher and her supervisor as well as the Griffith University Human Ethics Committee and Malaysia Medical Research Ethics Committee (MREC) approvals were included on the study information sheet. Therefore, the participants were able to contact the researcher if any questions arose during the study period.

3.15 Summary

In summary, a cross-sectional descriptive design was used to study pain experiences in women undergoing breast cancer surgery in two Malaysian hospitals. Data relating to expected pain, actual pain, preferred role and analgesic consumption were collected pre-operatively and at three time-points in the post-operative period. Descriptive and inferential statistics were used to answer the six research questions.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the results of the study in relation to the research questions. The first section presents the descriptive results of the sample in terms of breast cancer status, type of surgery, presence of family members, pain experiences, analgesic consumption and CPS role of participants in pain management. The descriptive analysis of frequency (n) and percentage (%) were used for the categorical variables. Continuous variables such as pain scores were non-normally distributed, and therefore these data are described using median and interquartile range (*IQR*) and range. Data for the length of surgery and age were normally distributed and are presented as mean, standard deviation (*SD*) and range. Overall, the distributions of most data were non-normal; therefore, non-parametric inferential statistical tests were used to determine the relationship between culture and pain experience, analgesic consumption and patients' participation in their pain management.

4.2 Response Rate

Participants in this study were recruited in two government hospitals using convenience sampling. The data collection period was six months from February to July, 2011. During the data collection period, 123 patients were scheduled for surgery. Only 92 participants met the inclusion criteria and were approached. Of these 92 participants, six refused to participate, thus the number of participants who agreed was 86 (Figure 2). Complete data were obtained from 80 participants. Two participants required intensive care post-operatively, while the remaining four participants had their operation

cancelled and therefore did not provide data. Thus, the completion rate for this study was 93%.

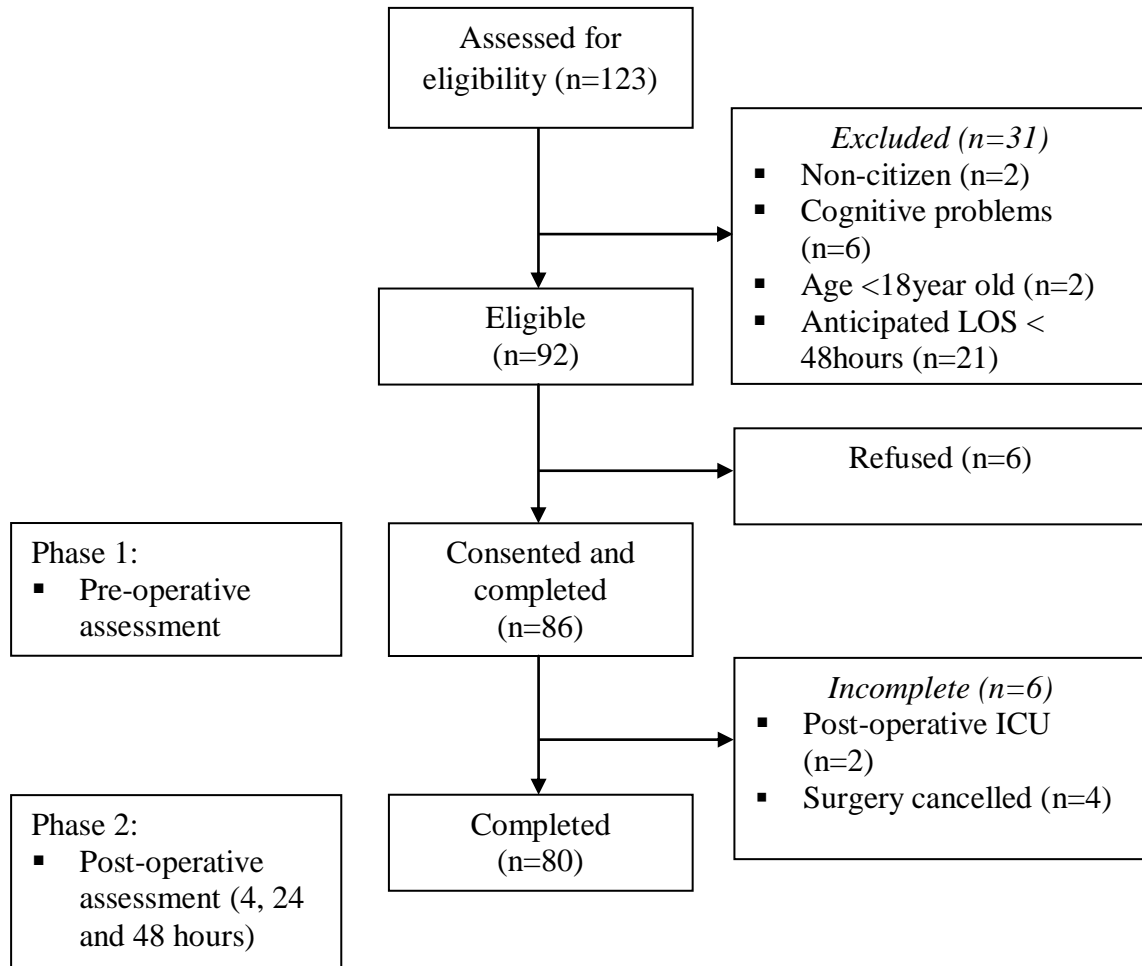


Figure 2: Participant Recruitment Flowchart

4.3 Demographic Characteristics of Participants

Of the 80 participants who completed all points of data collection, the majority were of Malay ethnicity ($n = 56$; 70%) and the predominant religion was Islam ($n = 50$; 71%) (Table 4). The age of the participants ranged from 19 to 72 years old with a mean age of 53.0 years ($SD = 11.2$ years). Nearly half of the participants ($n = 39$; 49%) had upper secondary school education. Family income per month in Malaysia Ringgit (RM) ranged between RM3001 - RM4000 ($n = 22$; 27%).

Table 4: Demographic Characteristics of Participants (n = 80)

Variables	n	%
Ethnicity		
Malay	56	70
Chinese	15	19
Indian	9	11
Religion		
Islam	57	71
Buddhist	12	15
Hindu	8	10
Christian	3	4
Education level		
Primary school	12	15
Lower secondary school	16	20
Upper secondary school	39	49
Tertiary education	12	15
Informal education	1	1
Total family income (monthly)		
<RM1000	13	16
RM1000 - RM2000	14	18
RM2001 - RM3000	16	20
RM3001 - RM4000	22	27
RM4001 - RM5000	8	10
RM5001 - RM10,000	5	6
RM10,001 - RM20,000	2	3

Note: RM = Malaysia Ringgit

4.4 Surgical information

Most participants (n = 70; 88%) who had undergone surgery were diagnosed with a malignant type of breast cancer, with all Chinese participants having malignant breast cancer (Table 5). The most common surgical type was “removal of all breast and axillary node dissection” (n = 60; 75%). In medical terms, this surgery is known as mastectomy and axillary clearance. In relation to the ASA level, more than 60% of participants had mild systemic disease (ASA level II). Overall, the length of surgery

ranged from 18 minutes to 202 minutes, with an average of 90 minutes ($SD = 29.0$ minutes). Malay participants experienced longer surgery, followed by Indian and Chinese participants.

Table 5: Surgical Information (n = 80)

Variables	Ethnicity			
		Malay (n = 56)	Chinese (n = 15)	Indian (n = 9)
	n (%)	n (%)	n (%)	n (%)
Cancer diagnosis/stage				
Malignant	70 (88)	47 (84)	15 (100)	8 (89)
Benign	10 (12)	9 (16)	0 (0)	1 (11)
Type of surgery				
Removal of the tumor only & small amount of surrounding tissue	10 (12)	10 (18)	0 (0)	0 (0)
Removal of the tumor only & small amount of surrounding tissue with axillary node dissection	6 (8)	3 (5)	2 (13)	1 (11)
Removal of all breast tissue	4 (5)	2 (4)	1 (7)	1 (11)
Removal of all breast tissue & axillary node dissection	60 (75)	41 (73)	12 (80)	7 (78)
ASA level				
I	30 (37)	21 (38)	6 (40)	3 (33)
II	50 (63)	35 (62)	9 (60)	6 (67)
Length of surgery (minutes)				
Mean (SD)	83.0 (31.0)	92.0 (28.0)	83.0 (19.0)	90.0 (46.0)
Minimum-maximum	18-202	18-155	42-110	50-202

Note: ASA (American Society of Anesthesiology Classification) - The physical status classification system to determine a patient's condition before surgery. ASA I= a normal healthy patient. ASA II=a patient with mild systemic disease

4.5 Breast Cancer Status

The majority of participants were diagnosed as a new case ($n = 74$; 93%) and had never experienced the surgery before. For those few participants who had undergone previous breast surgery ($n = 6$; 7%), the minimum period from the first surgery to the current surgery was five months and the maximum was 322 months. The site of surgery was spread fairly evenly across the left ($n = 38$; 47%) and the right breasts ($n = 39$; 49%). Table 6 presents the distribution of breast cancer status among three ethnic groups.

Table 6: Breast Cancer Status ($n = 80$)

Variables	Ethnicity			
		Malay ($n = 56$) n (%)	Chinese ($n = 15$) n (%)	Indian ($n = 9$) n (%)
New case				
New case	74 (93)	52 (93)	14 (93)	8 (89)
Recurrent case	6 (7)	4 (7)	1 (7)	1 (11)
Site of current cancer				
Right breast	39 (49)	28 (50)	5 (33)	6 (67)
Left breast	38 (47)	25 (45)	10 (67)	3 (33)
Right and left breast	3 (4)	3 (5)	0 (0)	0 (0)
Site of previous cancer ($n=6$)				
Right breast	2 (3)	2 (4)	0 (0)	0 (0)
Left breast	3 (4)	1 (2)	1 (7)	1 (11)
Right and left breast	1 (1)	1 (2)	0 (0)	0 (0)

4.6 Presence of Family Member

The presence of a family member was observed during three post-operative pain assessments at 4 hours, 24 hours and 48 hours (Table 7). Family member presence was most prevalent at the 4 hour post-operative period ($n = 62$; 76%). The number of participants with a family member present had decreased to just half at 24 and 48 hours for all ethnic groups.

Table 7: Presence of Family after Operation (n = 80)

Post-operative assessment	Ethnicity			
	Yes* n (%)	Malay (n = 56) n (%)	Chinese (n = 15) n (%)	Indian (n = 9) n (%)
4 hours	62 (76)	45 (80)	9 (60)	8 (89)
24 hours	38 (48)	32 (57)	2 (13)	4 (44)
48 hours	30 (38)	24 (43)	3 (20)	3 (33)

Note: *Yes= presence of family member at the time of pain assessment

4.7 Pain Experiences

Pain experiences were assessed using the VAS, a 100mm horizontal line with one end anchored at “0” representing “no pain”, and the other end “100” representing the “worst pain possible”. Participants were asked to rate their pain on the scale to indicate their pain experience. Pain scores were assessed before and after the operation. The assessment before the operation was to determine the worst pain score that participants *expected* to feel after the operation; while the post-operative assessment was to determine the *actual* pain they experienced.

4.7.1 Descriptive Analysis of Pain Experience

When participants were asked pre-operatively to rate their expectation of worst pain score after operation, the median pain score was 52.0mm (*IQR* = 40.0). Post-operatively, the median pain scores varied and were lower than expected at 4 hours, 24 hours and 48 hours (Table 8). Within the three ethnic groups, Malay participants rated higher pain scores throughout the post-operative time period. The pain scores of Malay and Indian participants consistently decreased throughout the post-operative time period, while the pain scores of Chinese participants increased at 24 hours post-operative and decreased again at 48 hours.

Table 8: Expected Pain Score and Actual Pain Score (mm) at 4, 24 and 48 hours
(n = 80; Malay = 56, Chinese = 15, Indian = 9)

	Total median (<i>IQR</i>)	Sub-group median (<i>IQR</i>)	Range
Expected pain score	52.0 (40.0)		0-100
Malay		59.5 (29.0)	0-100
Chinese		52.0 (36.0)	0-75
Indian		50.0 (52.0)	0-82
Pain score at 4 hours	27.0 (38.0)		0-90
Malay		29.5 (36.0)	0-88
Chinese		12.9 (37.0)	0-60
Indian		22.0 (35.0)	0-52
Pain score at 24 hours	26.5 (35.0)		0-100
Malay		24.5 (33.0)	0-71
Chinese		34.0 (47.0)	4-100
Indian		15.0 (55.0)	0-60
Pain score at 48 hours	14.0 (23.0)		0-100
Malay		13.5 (22.0)	0-100
Chinese		12.0 (22.0)	0-46
Indian		5.0 (52.0)	0-56

Pain scores were dichotomised into two groups using a cut-off point of 50; this cut-off point approximates the median pain score of expected pain (52.0mm) reported by the total cohort (Figure 3) and was used because the median pain scores varied at different time points. Findings showed that more than 50% of the participants rated the expected pain scores at above 50mm, except for Indian participants, among whom more than 60% rated the expected pain at less than 50mm. However, at the post-operative time periods (4, 24 and 48 hours), more than 50% of the participants in all ethnic groups rated actual pain scores of 50mm and less. The numbers of participants who rated pain scores at more than 50mm decreased sharply as time progressed, and none of the Chinese participants rated pain scores greater than 50mm during the 48 hours post-operative pain period.

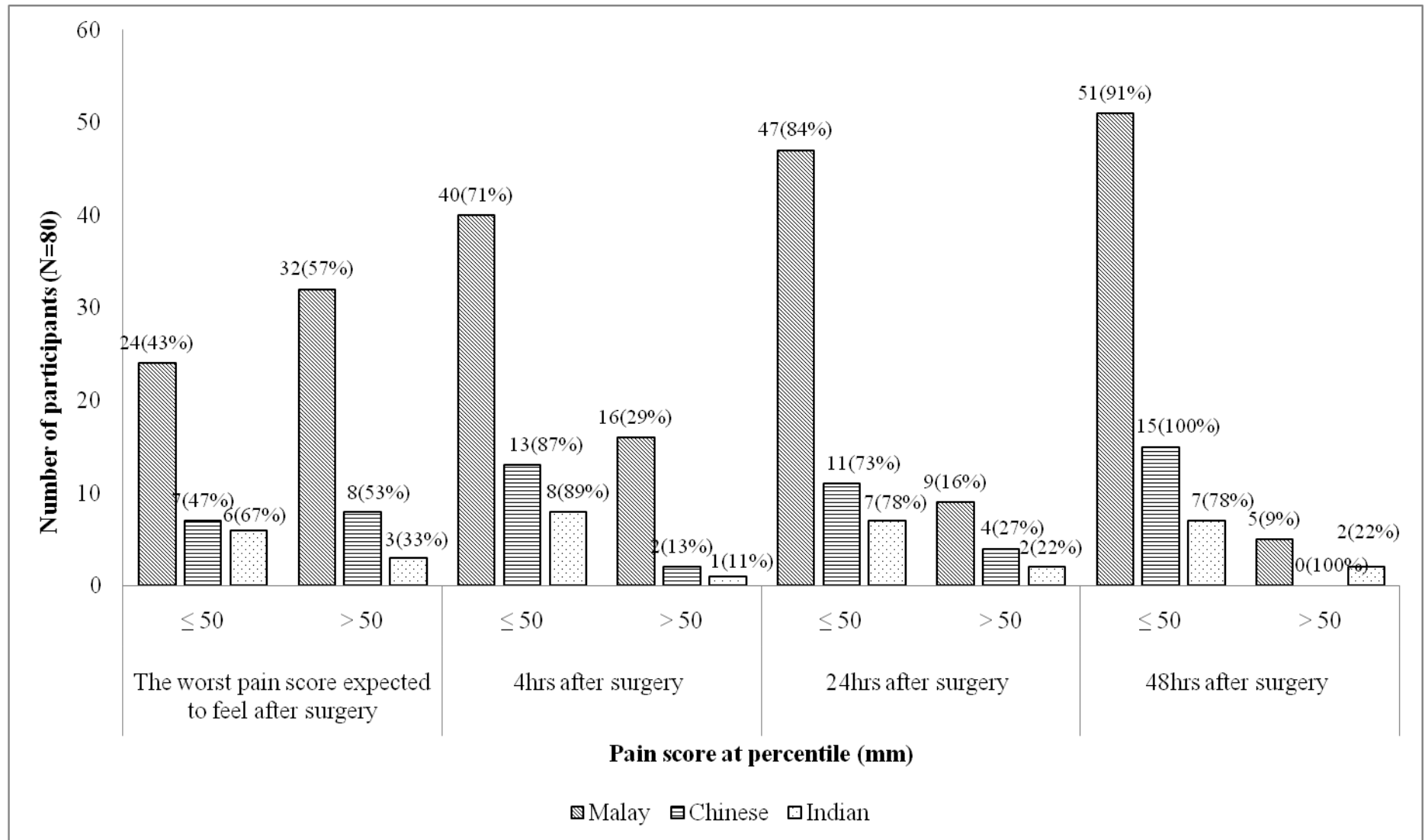


Figure 3: Expected pain scores and post-operative pain scores at 4, 24 and 48 hours experienced by Malays, Chinese and Indians (n = 80)

Details of every participant's pain scores are presented in the appendices. Appendix E displays the pre-operative expected pain scores as well as the post-operative pain scores at 4 hours, 24 hours and 48 hours, respectively. Pre-operative pain assessment indicated that more than 90% of participants expected some pain, while approximately 10% expected pain at 80mm and above. However, the number of participants who reported actual pain scores of 80mm and above post-operatively were lower than expected; these were about 6%, 1% and 1% at 4, 24 and 48 hours, respectively. Pre-operatively, a Malay participant rated expected pain at the highest pain score (100mm). Meanwhile, Malay participants also rated the highest pain scores (90mm and 100mm) at the 4 hours and 48 hours in the post-operative period. However, at the 24 hour post-operative period, the highest pain score of 100mm was reported by a Chinese participant. Conversely, the number of participants who reported no pain at all (0mm) increased slightly from seven (9%) at the pre-operative pain assessment, to 14 (18%) participants in the post-operative period. More Malay than Chinese and Indian participants reported no pain (0mm).

4.8 The Influence of Culture on Pain Experience

The first research question was “What is the relationship between culture and pain experience among Malays, Chinese and Indian patients?” To address this research objective, Cramer's *V* test was performed to determine the relationship between ethnicity and pain expectation before the operation and pain at 4 hours, 24 hours and 48 hours after the operation (Table 9). The findings showed that there were no significant relationships between ethnicity and pain experiences before the operation, at 4 hours, 24 hours and 48 hours after the operation ($p > .05$).

Table 9: Relationship between Ethnicity and Pain Scores after Surgery using Cramer's V Test (n = 80)

Pain score	50 percentile Pain score(mm)	Ethnicity			<i>p</i> = value
		Malay n (%)	Chinese n (%)	Indian n (%)	
Expected pain	≤ 50	24 (43)	7 (47)	6 (67)	Cramer's <i>V</i> =.149 <i>p</i> = .413
	> 50	32 (57)	8 (53)	3 (33)	
Post-operative pain score at 4 hours	≤ 50	40 (71)	13 (87)	8 (89)	Cramer's <i>V</i> =.174 <i>p</i> = .299
	> 50	16 (29)	2 (13)	1 (11)	
Post-operative pain score at 24 hours	≤ 50	47 (84)	11 (73)	7 (78)	Cramer's <i>V</i> =.109 <i>p</i> = .621
	> 50	9 (16)	4 (27)	2 (22)	
Post-operative pain score at 48 hours	≤ 50	51 (91)	15 (100)	7 (78)	Cramer's <i>V</i> =.209 <i>p</i> = .175
	> 50	5 (9)	0 (0)	2 (22)	

The second research question was “What is the relationship between expected pain and the actual pain experienced by participants?” Kendall's tau-b correlation test was used to determine this relationship (Table 10). Significant correlations were found between expected pain score and actual pain score at 4 hours and 24 hours after the operation.

Table 10: Relationship between Expected Pain Score and Actual Pain Score at 4, 24 and 48 hours Post-operative using Kendall's tau-b Test (n = 80)

	Score of pain expected after surgery	Pain score at 4 hours	Pain score at 24 hours	Pain score at 48 hours
Expected pain score after surgery	1.000			
Pain score at 4 hours after surgery	.233**	1.000		
Pain score at 24 hours after surgery	.158*	.355**	1.000	
Pain score at 48 hours after surgery	.036	.280**	.519**	1.000

Note: *Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed)

4.9 Descriptive Analysis of Analgesic Types

The types of analgesic prescribed to participants were divided into three main categories: paracetamol, nonsteroidal anti-inflammatory drugs (NSAIDs) and morphine equivalents. The types of NSAIDs included oral celecoxib, oral diclofenac and oral mefenamic acid. Morphine equivalents included patient-controlled analgesia (PCA) morphine, intravenous tramadol and oral tramadol, as well as intramuscular injection of pethidine. Results from the analysis (Table 11) showed that more than 80% of participants ($n = 68$) consumed the analgesic type of morphine equivalents (morphine, tramadol or pethidine) throughout the 48 hours period after operation. Some participants also consumed more than one type of analgesic at one time.

4.9.2 Influence of Culture on Analgesic Consumption

The third research question was “What is the relationship between culture and type of analgesic consumption among Malay, Chinese and Indian participants?” The findings from Cramer’s V test showed no significant relationship between ethnicity and type of analgesic (paracetamol, NSAIDs and morphine equivalents) (Table 11).

Table 11: Relationship Test between Ethnicity and Type of Analgesic using Cramer’s V Test ($n = 80$)

Type of analgesic	n (%)	Ethnicity			$p = \text{value}$
		Malay ($n = 56$) n (%)	Chinese ($n = 15$) n (%)	Indian ($n = 9$) n (%)	
Paracetamol	30 (38)	17 (30)	8 (53)	5 (56)	Cramer’s $V = .226$ $p = .130$
NSAIDs	48 (60)	36 (64)	8 (53)	4 (44)	Cramer’s $V = .176$ $p = .290$
Morphine equivalents	68 (85)	47 (84)	14 (93)	7 (77)	Cramer’s $V = .124$ $p = .539$

4.9.3 Descriptive Analysis of Total Analgesic Consumption

The total dosage for each type of analgesic was divided at the median cut-off point for the whole sample since the data were non-normally distributed. Table 12 presents the total dosage of analgesic consumption by participants across the ethnic groups during the 4 hours, 24 hours and 48 hours post-operative periods.

At 4 hours, only 16 participants took some type of analgesic, while 64 participants did not take any analgesic. Fifteen participants (19%) were prescribed morphine equivalents with the majority of them having a morphine dosage of 10mg and less ($n = 12$; 15%). Only one participant (Indian) consumed both NSAIDs and paracetamol with a dosage of 1000mg and 200mg respectively. The total analgesic consumption increased across all types of analgesic at the 24 hours post-operative compared to 4 hours. At 48 hours, the number of participants and the total dosage of morphine equivalents remained similar to the amount of analgesic consumed at the 24 hours period.

4.9.4 Influence of Culture on Total Analgesic Consumption

The fourth research question was “What is the relationship between culture and total analgesic consumption among Malay, Chinese and Indian participants?” The results showed there was no significant relationship between ethnicity and analgesic consumption at the three post-operative time periods (Table 12). The relationship between ethnicity and total paracetamol and NSAIDs dosage cannot be established at the 4 hour post-operative time point as only one participant used paracetamol and NSAIDs during this period.

Table 12: Relationship between Ethnicity and Total Dosage of Analgesic Consumption using Cramer's V Test (n = 80)

Type of analgesic at post-operative points	Dosage	Ethnicity				<i>p</i> = value
			Malay	Chinese	Indian	
		n (%)	(n = 56) n (%)	(n = 15) n (%)	(n = 9) n (%)	
<i>4 hours</i>						
Paracetamol	≤1000mg	1 (1)	0 (0)	0 (0)	1 (11)	-
	>1000mg	0 (0)	0 (0)	0 (0)	0 (0)	
NSAID	≤200mg	1 (11)	0 (0)	0 (0)	1 (11)	-
	>200mg	0 (0)	0 (0)	0 (0)	0 (0)	
Morphine equivalent	≤10mg	12 (15)	7 (13)	4 (27)	1 (11)	Cramer's V= .354 <i>p</i> = .392
	>10mg	3 (4)	3 (5)	0 (0)	0 (0)	
<i>24 hours</i>						
Paracetamol	≤2000mg	14 (18)	6 (11)	5 (33)	3 (33)	Cramer's V= .270 <i>p</i> = .418
	>2000mg	10 (13)	7 (13)	2 (13)	1 (11)	
NSAID	≤200mg	22 (28)	15 (27)	4 (27)	3 (33)	Cramer's V= .199 <i>p</i> = .490
	>200mg	14 (18)	12 (21)	1 (7)	1 (11)	
Morphine equivalent	≤20mg	45 (56)	31 (55)	8 (53)	6 (67)	Cramer's V= .161 <i>p</i> = .421
	>20mg	22 (28)	15 (27)	6 (40)	1 (11)	
<i>48 hours</i>						
Paracetamol	≤5500mg	15 (19)	8 (14)	4 (27)	3 (33)	Cramer's V= .093 <i>p</i> = .879
	>5500mg	15 (19)	9 (16)	4 (27)	2 (22)	
NSAIDs	≤600mg	35 (44)	25 (45)	7 (47)	3 (33)	Cramer's V= .163 <i>p</i> = .520
	>600mg	14 (18)	12 (80)	1 (7)	1 (11)	
Morphine equivalent	≤20mg	36 (45)	25 (45)	7 (47)	4 (36)	Cramer's V= .038 <i>p</i> = .952
	>20mg	32 (40)	22 (39)	7 (47)	3 (27)	

4.10 Patients' Participation in Pain Management

CPS sort cards were used to assess each participant preferred roles in analgesia decision-making. There were five role options that the participants could choose, namely, “active-active”, “active-collaborative”, “collaborative-passive”, “passive-collaborative” and “passive-passive”. The findings revealed that none of the participants

preferred to have an “active-active” role (Figure 4). Only 22 participants (28%) preferred an “active-collaborative” role. About 17% (n = 14) and 16% (n = 13) preferred the “collaborative-passive” and “passive-collaborative” roles, respectively. The most preferred role selected was “passive-passive” (n = 31; 39%). No Chinese participant chose “collaborative-passive”, and no Indian participant chose “passive-collaborative”. More than half of the Chinese and Indian participants preferred the “passive-passive” role (n = 9; 60% and n = 5; 56% respectively).

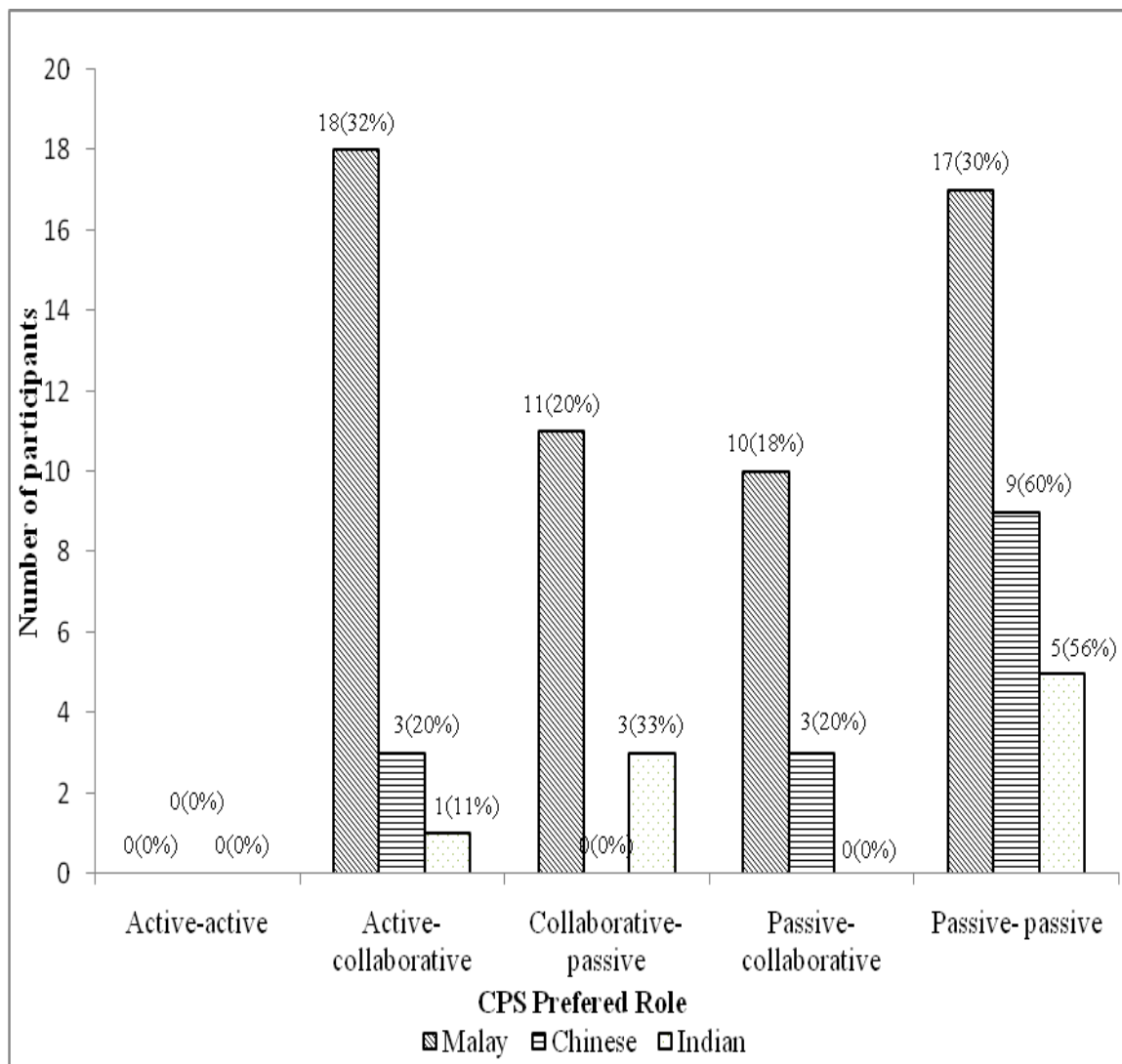


Figure 4: Distribution of participant-preferred CPS role (n = 80)

The fifth research question was “What is the relationship between pain experience and patient participation in pain management?” This relationship was determined using Kendall’s tau-b test. The findings, as presented in Table 13, showed that there was an inverse relationship ($r = -.270$, $p = .015$) between participants preferred role and expected pain scores. This result indicated that participants who had expected a higher level of pain score after the operation preferred to have a “passive-passive” role in choosing the analgesic. However, the correlations between participants preferred role and pain scores at 4 hours, 24 hours and 48 hours were non-significant.

Table 13: Relationship between Participants preferred roles and Pain Scores using Kendall’s tau-b Test (n=80)

Pain score		CPS preferred role
Expected pain score	Correlation coefficient	-.212*
	<i>p</i> - value	.014
Pain score at 4 hours	Correlation coefficient	-.153
	<i>p</i> - value	.076
Pain score at 24 hours	Correlation coefficient	-.088
	<i>p</i> - value	.309
Pain score at 48 hours	Correlation coefficient	-.057
	<i>p</i> - value	.512

4.10.1 Relationship between Culture and Patient Participation in Pain Management

The sixth research question was “What is the relationship between culture and patient participation in their pain management?” Patient participation was determined using CPS sort cards. The CPS data were originally ordinal, and then were reclassified into dichotomous data (e.g. active-active; 0 = no, 1 = yes) to enable a 2 X 2 Chi-square analysis of relationship with the ethnic groups. None of the participants chose an “active-active” role, therefore the Chi-square analysis could not be performed in regard to that role. The Chi-square analysis revealed there was a significant relationship

between Malays and the “passive-passive” preferred role ($p = .019$). The result for the relationship between Chinese participants and the “collaborative-passive” preferred role showed $p < .05$; however, this result was not considered significant since the numbers were so small. There were no significant relationships between other ethnicities and the CPS role. The details of these results are outlined in Table 14.

Table 14: Relationship between Ethnicities and CPS Preferred Role in Pain Management using Chi-square Test (n = 80)

CPS preferred role	Ethnicity	n (%)	χ^2 (df)	p-value
Active-active	Malay	-	-	-
	Chinese	-	-	-
	Indian	-	-	-
Active-collaborative	Malay	18 (32)	2.018 (1)	.155
	Chinese	3 (20)	.521 (1)	.470
	Indian	1 (11)	1.366 (1)	.242
Collaborative-passive	Malay	11 (20)	.595 (1)	.441
	Chinese	0 (0)	3.916 (1)	.048
	Indian	3 (33)	1.761 (1)	.185
Passive-collaborative	Malay	10 (18)	.354 (1)	.552
	Chinese	3 (20)	.191 (1)	.662
	Indian	0 (0)	1.968 (1)	.161
Passive-passive	Malay	17 (30)	5.540 (1)	.019*
	Chinese	9 (60)	3.512 (1)	.061
	Indian	5 (56)	1.207 (1)	.272

Note: *Significant at $p < .05$; #1 cell (25.0%) has expected count less than 5; the minimum expected count is 2.63

4.11 Summary of Results

This chapter has presented the results of analyses of the relationship between culture and pain experience, analgesic consumption and participation in pain management. The data collection was conducted in two Malaysian government hospitals with the completion rate of this study being 93%. The majority of participants were Malays,

diagnosed with malignant breast cancer and categorised as new cases. The scores for the pain that participants expected before surgery were higher compared to the scores for actual pain at 4, 24 and 48 hours post-operative. The type of analgesic most consumed by participants was morphine equivalents, followed by NSAIDs and paracetamol. The most preferred role selected by participants was the “passive-passive” role. There was a significant relationship between expected pain score and pain score at 4 hours and 24 hours after operation. A significant inverse relationship was also found between expected pain score and participant preferred role. The Malay ethnicity showed a significant relationship with “passive-passive” preferred role. The results and limitations of the study are detailed in the next chapter.

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This study aimed to determine the influence of culture on pain experience, analgesic consumption and patients' participation in their pain management. The study was conducted among Malaysian women undergoing breast cancer surgery. This chapter discusses in detail the main findings of the study, including participants' characteristics and significant findings of the research objectives. The strengths and limitations of this study are identified and discussed. Recommendations from this study in relation to nursing practice, nursing education and future research are made.

5.2 Characteristics of participants

Eighty women undergoing breast cancer surgery were recruited in this study, with a completion rate of 93%. The majority of participants were Malay (70%), followed by Chinese (19%) and Indian (11%), with a mean age of 53 years. According to the Kuala Lumpur Hospital admission census (2009), the majority of patients admitted to that hospital were Malay (66%), followed by Indian (19%) and Chinese (15%). The HKL and Hospital Putrajaya are situated in predominantly Malay population areas and many patients from these government hospitals are from lower to middle income socio-economic groups.

A retrospective breast cancer study by Hisham and Yip (2004) investigated data over a four year period (1998-2001) related to breast cancer treatment in HKL. The results indicated that the highest incidences of breast cancer were among Malay women (48%), followed by Chinese (35%) and Indian (17%) women. The median age of the women

was 50 years. According to the Malaysian National Cancer Registry in 2007, based on the age-standardised rate (ASR per 100,000 population), the incidence of breast cancer was highest among Chinese (38.1), followed by Indian (33.7) and Malay (25.4) women and the peak ASR was in the 50-59 year age group. A recent study by Pathy et al. (2011) examined the epidemiology of breast cancer in Malaysia and Singapore between 1990 and 2007. Two hospitals were included and 4058 breast cancer cases were reviewed. The majority of patients were Chinese, followed by Malay and Indian women. The study found that more than half of the women with breast cancer were diagnosed before the age of 50.

This present study found that more than 80% of participants had malignant cancer, and the most common surgery was removal of breast tissue with axillary node dissection (mastectomy). Mastectomy was the most common type of surgery involved (70%) and this was due to large tumor size. Compared to Western countries, the incidence of breast cancer in Asia is still low; however, Asian women who are diagnosed with breast cancer are younger than Western women, and the survival rate of breast cancer in Asia is lower than in Western countries (Agarwal, Pradeep, Aggarwal, Yip, & Cheung, 2007; Taib, Yip, Ibrahim, Ng, & Farizah, 2007).

5.3 Culture and Pain Experiences

The biocultural pain model (Bates, 1987) was used as a framework for this study. This model proposes that an integration of gate control theory with social comparison and social learning processes within a person's culture has an influence on their experiences of pain. These pain experiences include pain intensity and the person's attitude and behavior toward the pain.

The findings from this study show that Malay, Chinese and Indian women in Malaysia who had undergone breast cancer surgery did expect to experience pain after the surgery

and the expected pain level was relatively high at 52mm out of a maximum possible 100mm of pain. However less than a quarter of the women experienced actual post-operative pain above this level. The median (*IQR*) post-operative pain scores reported at 4 hours, 24 hours and 48 hours were 27(38)mm, 27(35)mm and 14(23)mm, respectively. The percentages of women who reported actual post-operative pain during these three post-operative periods were lower than expected, at 24%, 19% and 9%, respectively. In the present study, women who expected higher post-operative pain also experienced higher actual pain post-operatively. These results of present study are consistent with those reported in previous studies conducted among different cultures and in relation to various types of surgery (Ene, Nordberg, Sjöström, & Bergh, 2008; Sommer et al., 2008; Svensson, et al., 2000; Svensson, Sjöström, & Haljamäe, 2001).

The findings of this study are consistent with a study in Sweden among patients undergoing orthopaedic or abdominal surgery. The verbal rating scale (VRS) was used for post-operative pain assessment and the findings indicated that 91% of patients expected moderate to severe pain and 76% experienced the actual pain post-operatively (Svensson, et al., 2001). A descriptive comparative study in Thailand among 112 women undergoing elective gynecology exploratory laparotomy found that approximately 92% of the women expected post-operative pain at moderate and severe pain levels, and 89% experienced the actual post-operative pain at moderate and severe levels. The median scales of the pain scores were 6.4 (expected) and a slightly higher 6.6 (experienced) (Nimmaanrat, Liabsuetrakul, Ukritdathikarn, & Wasinwong, 2007). The above-mentioned studies reported that the expected post-operative pain was higher than the actual post-operative pain and these findings are supported by the present study. However, those studies did not investigate the relationship between expected and actual post-operative pain experienced by patients.

Within the biocultural model it has been suggested that culture influences pain; however, the findings of previous studies are inconsistent. Findings from the present study indicate a trend towards Malay women reporting higher post-operative pain than Chinese and Indian women, however no significant relationship was found between culture and post-operative pain. The biocultural model has been supported by two Asian studies (Suza, et al., 2007; Tan, et al., 2008). Specifically, a Singaporean study among Malay, Chinese and Indian women who were undergoing a lower segment cesarean section procedure found there was a significant difference between culture and pain scores, with Indian patients reporting higher pain scores compared to Malays and Chinese (Tan, et al., 2008). Similar results were found in an Indonesian study among patients after abdominal and orthopaedic surgery, where Batak patients reported higher pain than Javanese patients (Suza, et al., 2007). Although these studies have all been conducted in the Asian context, the different types of surgery, specifically breast surgery, lower segment cesarean section procedure and abdominal or orthopaedic surgery – may explain the different findings. Moreover, the number of patients included in the study by Tan et al. (2008) was larger than the number included in the present study; therefore, there may have been greater statistical power to detect the significant differences between ethnicity and pain scores.

Although there was no statistically significant relationship found between culture and post-operative pain in this study, the results are clinically important because the number of patients who reported post-operative pain was lower than in previous studies (Sommer, et al., 2008; Svensson, et al., 2000). The study by Sommer et al. (2008) in the Netherlands reported that post-operative pain scores at 4, 24 and 48 hours were 39%, 43% and 27%, respectively; while pain scores in the study by Svensson et al. (2000) were 41%, 30% and 19% at the three post-operative pain assessment periods,

respectively. The high number of pain scores reported by the above studies and in comparison to the present study might be due to different cultural settings.

The present study was conducted in an Asian cultural setting, whereas the majority of previous studies have been conducted in Western cultural settings. According to Chen, Tang, and Chen (2011), Asian patients are more reluctant to report pain and may be less assertive than Western patients. Moreover, reporting pain may be considered an indication of complaining, therefore an Asian patient may prefer not to report the pain in order to be “a good patient” in the perception of doctors or nurses (Wong & Chan, 2009). In Chinese culture, particularly in Taoism, people are taught to maintain a harmonious situation because disharmony can cause disease symptoms. One way to maintain harmony is to be a person who does not complain. In addition, Buddhism teaches that the right path to relieve pain and suffering is not to seek pleasurable feelings but to develop a disinterested attitude toward it. Believers in Confucianism, on the other hand, will report pain only if they cannot bear it, because for them pain is a part of life, a “trial” or a “sacrifice” (Chen, et al., 2008). These are the spiritual approaches that Chinese people believe will help them to understand and cope with pain. In addition, among Islamic believers, pain and suffering are believed to be a part of the testing by God to determine a person’s level of patience. They believe a person who has a high level of patience will be closer to God. Such an approach is an example of the social learning processes proposed in the biocultural pain model.

The high expectation of post-operative pain may also be influenced by other factors, and these have been reported in previous studies. There is evidence to suggest that gender (Aubrun, et al., 2005; Rosseland & Stubhaug, 2004), and types of surgery may influence the pain intensity. These factors are not examined in this study, and should be explored in future research. Gender has been reported to influence the pain experience, with women reporting higher levels of pain than men (Singh, et al., 2008). In the present

study, all participants were women so it is not possible to determine if there was a difference between genders, but it may explain the high levels of expected and actual pain in the cohort as a whole.

The type of surgery may also influence post-operative pain. Certain types of surgery – particularly surgery which involves deep tissue incision, such as abdominal and orthopaedic surgery – have been identified as resulting in greater pain intensity (Chung & Lui, 2003; Mei, et al., 2009). Previous studies by Sommer et al. (2008) and Svensson et al. (2000) were conducted among patients undergoing several different types of surgery, including orthopaedic and open abdominal surgical procedures (urological, upper gastrointestinal and endocrinological), and have reported similar findings. Furthermore, the post-operative pain scores experienced by patients in both those studies were higher than in patients in the present study. The present study only included patients who were undergoing breast cancer surgery; in other words, surgery that does not involve deep tissue incision.

5.4 Culture and Analgesia Dosage

In this study, morphine equivalents (morphine, pethidine and tramadol) were predominantly consumed by participants, followed by NSAIDs (celecoxib, diclofenac, mefenamic acid) and paracetamol. Most women in the study consumed more than one analgesic at one time, through a combination of morphine equivalents and NSAIDs or paracetamol. The analgesic prescriptions in HKL and HPJ are based on the 2004 National Protocol of Pain Management (Cardosa, Deva, Othman, & Hooi, 2004). For the patients in the present study, morphine equivalents were prescribed for moderate to severe pain and commonly given immediately after the operation. Paracetamol and NSAIDs were prescribed for mild to moderate pain (Cardosa, et al., 2004). This practice of combination therapy is consistent with an earlier study in a cohort of post-operative

patients with breast surgery where it was found that NSAIDs with opioids or paracetamol reduced opioid consumption during the first six hours and yet provided improved pain relief (Legeby, Sandelin, Wickman, & Olofsson, 2005). Paracetamol in combination with NSAIDs resulted in better and longer pain relief (Dahl, 2000) and reduced the side-effects of NSAIDs (Cardosa, et al., 2004).

In this study, in contrast to the relationship proposed in the biocultural pain model, culture did not significantly influence analgesic consumption. It appears there has been no study examining the relationship between culture and analgesic consumption among breast cancer patients specifically, but this relationship has been explored in other cohorts. Earlier studies among patients in the United Kingdom and Singapore examined the issue from the perspective of differences between ethnic group and analgesia. The study, conducted in the United Kingdom among patients in an emergency unit, demonstrated a similar result where there was no significant differences between culture and analgesic use among Bangladeshi and White patients (Choi, Yate, Coasts, Kalinda, & Paul, 2000). In contrast, a Singaporean study by Tan et al. (2008) reported there was a significant difference between culture and morphine consumption among Malay, Chinese and Indian patients, with Indian patients consuming the most. The ethnic groups involved in the study by Tan et al. were similar to the present study, however, the different type of surgery (patients undergoing caesarean section) and type of analgesia used in that study may explain the differences in findings. Furthermore, the sample size in the study by Tan et al. was far larger than in the present study; therefore, there was an increased likelihood of detecting a statistical relationship between ethnicity and pain as well as ethnicity and analgesic consumption.

The present study revealed that many participants experienced untreated pain. Based on the participants' medication records, it was learned that approximately 80% of participants did not receive any analgesic during the first four hours after the operation.

During this time, the median post-operative pain score was 27mm with approximately 24% of participants reporting pain at more than 50mm. All participants had been prescribed with analgesic, but the analgesic was not always administered by nurses during the 4 hours after the operation. Untreated acute post-operative pain is likely to prolong recovery from surgery and if patients remain in severe pain this can lead to chronic pain such as post-mastectomy pain syndrome (Poleshuck & Green, 2008). Past studies have revealed several factors that may also reflect why many patients in this study did not receive any analgesic during the first four hours in the post-operative period: for instance, the lack of analgesia availability at that time, a shortage of nurses, the routines of analgesic administration in the ward, and patients' attitudes may possibly explain these study findings.

Lack of analgesic availability at the time of patients' need and shortage of nurses are the reasons why patients do not receive the medication on time (Kalisch, Tschannen, Lee, & Friese, 2011). A study by Kalisch and Tschannen et al. (2011) conducted in an acute care settings in 10 hospitals in the United States found that failure to administer medication on time was among the top five care elements overlooked by nurses. Common reasons included a lack of material resources (including medication) and a shortage of nurses. Other absent care elements were lack of patient ambulation, lack of patient turning, lack of patient mouth care, and poor conference participation by nurses. Generally, in Malaysian government hospitals, only analgesics such as morphine, pethidine, diclofenac and paracetamol are available in the ward at any time. Other analgesics (opioid or NSAIDs), such as tramadol and celecoxib, that have been prescribed by the doctor must be ordered from the pharmacy. Waiting for the analgesics to arrive in the ward sometimes delays the administration of the medication to the patient; thus, patients do not receive the analgesic on time.

A shortage of nurses also may be related to increased nursing workload and thus results in patients not receiving analgesics on time. In the researcher's experience, in order to minimise the workload, some nurses follow a fixed schedule time for administration of medication. For instance, the analgesic intravenous tramadol may be prescribed as eight hourly (three times per day) and will be administered at 08.00, 16.00 and 23.00. In the present study, many patients did not receive the analgesic during the first four hour post-operative period and this was most probably due to that time period not coinciding with the scheduled time for analgesic administration. In addition, the reason that some patients did not receive analgesic at the 4 hour post operative period may be that many patients received analgesic intra-operative, therefore nurses were reluctant to administer analgesic early in the post-operative period.

Moreover, the nurse-to-patient ratios in both hospitals was approximately 1:8 to 1:10, which may suggest pressure on nurse workload. However, this is only an assumption, based on the researcher's experience and observation in the clinical setting where this study was conducted. In future research, the relationship between nurse workload and medication administration should be further explored.

Some studies have found that patients' attitudes, such as reluctance or refusal to have an analgesic, desire to be a good patient (Tzeng, Chou, & Lin, 2006) and fear of side-effects of analgesics (Cohen et al., 2008; Manias & Williams, 2008), are related to untreated post-operative pain, and these factors may possibly explain why few analgesics are administered in the four hour post-operative period. A Taiwanese study among 207 patients who had undergone several types of surgery reported that 21% of patients were reluctant to report the post-operative pain during the first three days after the operation and 33% refused to use analgesics during this period. The findings also revealed a significant relationship between patients who were reluctant to report the pain and their reluctance to use analgesics for post-operative pain compared to patients

who reported the pain. In addition, a significant relationship was found between reluctance to use analgesics and the desire to be a good patient (Tzeng, et al., 2006).

An Australian study, which surveyed 126 cancer patients and found that more than 40% of patients believe that analgesics would potentially cause them addiction and those who had this belief mostly had higher intensity current pain and experienced higher worst pain in the previous 24 hours of ward admission (Cohen, et al., 2008). In addition, another Australian study that observed 103 pain activities among patients with chronic kidney diseases found that approximately 25% of the patients did not receive analgesics or adjuvant, and when they were interviewed, the reason was fear of the side-effects of analgesia. Most of the pain activities in that study were related to pain after kidney surgery. Furthermore, patients who did not receive any analgesic mostly presented with a passive decision-making role. Patients' decision-making roles are discussed further in the next section in relation to culture and patients' participation in pain management.

5.5 Culture and Participation in Pain Management (using analgesics)

Participants preferred role in making decisions about the analgesic they will receive after an operation was assessed pre-operatively. The findings of this study showed that most participants preferred the "passive-passive" role (39%), followed by the "active-collaborative" role (27.5%). No participants chose an "active-active" role. Among the three ethnic groups, only Malay participants significantly preferred the "passive-passive" role. Previous studies, however, have had mixed findings (Almyroudi, Degner, Paika, Pavlidis, & Hyphantis, 2011; Chapple, Caress, & Kay, 2003; Sabo, et al., 2007; Sepucha, Ozanne, Partridge, & Moy, 2009). The choice of role might be related to the types of healthcare decision-making that the patients have experienced, the patients' characteristics and women's roles in Asian culture.

It appears that no similar study has investigated breast cancer patients' participation in analgesia decision-making after undergoing an operation. Most previous studies have examined treatment preferences for female breast cancer patients such as surgery and treatment choices (Almyroudi, et al., 2011; Sepucha, et al., 2009). For example, a Greek study by Almyroudi et al. (2011) reported that approximately 45% of women preferred the "passive-passive" role in their participation in decision-making in relation to their medical and breast cancer treatment. Similar findings were also reported in an intervention study in the US, where women were shown to still depend on their doctor's decision-making about their treatment, although they had been provided with the decision aid (30 minute DVD) that taught them how to be involved in treatment choices (Sepucha, et al., 2009). In addition, patients with chronic diseases have been shown to prefer passive and collaborative roles. A study on patient participation in medication was done among patients with chronic diseases (diabetes mellitus type 2 and rheumatic arthritis) and showed that approximately 70% of the patients preferred a "collaborative" and "passive" role for medical decision-making (Garfield, Smith, Francis, & Chalmers, 2007). Similar findings were reported by Cox et al. (2007) in a study that explored general practice patients in the UK. The findings showed most patients preferred to have a "collaborative" role and "collaborative-passive" role. The findings of the current study and previous studies suggest that the "passive-passive" or "passive-collaborative" roles are mostly preferred among patients who have cancer and chronic diseases.

Patient demographic characteristics such as age, education level and type of surgery (mastectomy) are factors that potentially influence the patient's preferred role. Previous studies have investigated the relationships between these variables. The preference for the "passive-passive" role was significantly associated with patients undergoing mastectomy (Almyroudi, et al., 2011) and older patients (Elkin, Kim, Casper, Kissane, & Schrag, 2007), while younger and more educated (college and university level)

patients were likely to choose an “active-active” role (Almyroudi, et al., 2011; Garfield, et al., 2007). In the present study, the average age of the participants was 52 years, with the majority of them having education levels at lower and upper secondary school, and the majority of them having mastectomy and axillary node dissection (removal of all breast tissue and axillary node dissection). These factors may suggest why many of the patients in the present study preferred the “passive-passive” role. However, the relationship between patients’ demographic characteristics and preferred roles was not explored in the present study; therefore, this relationship should be further explored in future research.

The “passive-passive role” may also be preferred due to a lack of knowledge regarding the post-operative pain and analgesia. In this study, some informal conversations with the participants revealed that many did not understand the types of analgesic they received and the benefit of those analgesics; therefore, they preferred the doctor or nurse to decide for them. However, some of the patients may become more involved if they know about the analgesics. As more than half of the participants had an educational level at upper and lower secondary school, the educational level might be related to their understanding of their health care.

A study by Manias and Williams (2008) in Australia which observed patients’ participation roles in decision-making in managing pain due to chronic kidney diseases found that among 103 pain activities observed, 78 showed the passive style. More than 25% of the passive role cases resulted in no administration of analgesic or adjuvant. Interviews were further conducted with all patients and found that language barriers and fear of side-effects were the reasons why these patients preferred a passive role. Conversely, patients who played active and collaborative roles had some knowledge about analgesics and pain management.

In the United Kingdom, a study by Beaver and Booth (2007) reported that among 375 colorectal cancer patients 94.7% reported that they wanted to know what was happening to them and be involved in treatment decision-making. A study in Canada among 611 breast cancer patients reported that patients who have three or more information providers took an active role in breast cancer treatment and general healthcare decision-making. Patients also reported that they were two times more satisfied with their decision-making compared to patients who had fewer information providers (Sabo, et al., 2007). A qualitative study among dental patients who preferred a passive role in dental treatment decision-making reported that a lack of knowledge regarding the treatment made them feel disempowered to actively participate in the decision-making process (Chapple, et al., 2003). From the previous studies mentioned above, it appears that patients may not have asked nurses or doctors about their pain management or treatment because of their lower education background, lack of knowledge and language barrier. Therefore providing patients with adequate information about their health condition and treatment will facilitate patients to actively participate in their treatment decision-making.

In the present study, there appears to be a relationship between culture and preferred role, with Malay participants found to significantly prefer the “passive-passive” role. However a significant relationship was not found in relation to Chinese and Indian participants due to the small sample size. The relationship between preferred role and Chinese and Indian ethnicity needs to be further explored in a larger sample size.

In the present study, the number of participants who preferred the “passive-passive” role was high compared to previous studies. A study in the US reported that Asian people were shy, less assertive and were likely to use indirect communication compared to mainland American patients. As a result, Asian people were more dependent on health care providers’ opinions and participated less in medical decision-making than mainland

American patients (Young & Klinge, 1996). The participants in their study were Asian American patients (e.g. Filipino, Japanese, Chinese and Korean) and mainland American patients (e.g. Hispanic, White, African American and Hawaiian).

All the participants in the current study were women, and their widespread choice of the passive role reflects women's role in Asian culture. Traditionally, Asian women are viewed as having an inferior social position, being less assertive and being more family-oriented than men (Agarwal, et al., 2007; Ariff & Beng, 2006). This also suggests why Malay women in the study preferred the "passive-passive" role. In addition, the current rates of breast cancer in Malaysia show that Malay women have later stage breast cancer and lower survival rates of breast cancer than other ethnic groups (Yip, 2009), which may also indicate that they played a "passive-passive" role in their medical and surgical decision-making. However, in the present study, the numbers of Chinese and Indian participants were small; therefore, it was not possible to detect statistically significant relationships between ethnicity and patients' preferred decision-making role.

5.6 Strengths and Limitations of this Study

This study aimed to determine the influence of culture, namely the culture of Malay, Chinese and Indian ethnic groups, on pain experience, analgesic consumption and participation in pain management after breast cancer surgery. The study objectives and methodology contributed to this study's strengths, however some limitations are also acknowledged.

5.6.1 Strengths of this study

i. Study Design

The 80 participants involved in this study were recruited from two Malaysian government hospitals. These two hospitals, namely Hospital Kuala Lumpur and

Hospital Putrajaya, are well known as the main referral centers for breast cancer treatment. The participants were recruited based on consecutive sampling. This sampling was able to include all the patients who met the inclusion criteria of the study. Thus, the sample was more likely a better representation of breast cancer patients who had surgery during this study period. This sampling is a type of convenience sampling and is considered the strongest form of non-probability sampling (Polit & Beck, 2012).

ii. New Study in Malaysia

It appears from the search of the literature that few studies have explored the influence of culture on post-operative pain or patients' participation in pain management, particularly in Malaysia. This study is considered to be the first study in Malaysia that investigates the influence of culture on post-operative pain, analgesic consumption and patients' participation in pain management from a nursing perspective. Previous studies among breast cancer patients in Malaysia have been mostly related to breast cancer epidemiology, medical professionals and in medical contexts (Hisham & Yip, 2004; Pathy, et al., 2011; Yip, 2009; Yip & Ng, 1996).

iii. Higher Completion Rate

Eighty participants were recruited in two Malaysian government hospitals and a high completion rate, of 93%, was received. Face-to-face interviews were conducted to obtain participation permission, up until the final pain assessment at 48 hours after the operation. This process involved ongoing contact with the participants and resulted in higher cooperation between researcher and participants. According to Polit and Beck (2012), face-to-face interviews have the potential to provide a high response rate of 80% to 90% from participants.

iv. Rigorous Process for Translating the Control Preference Scale

The CPS used was adapted from Degner, Sloan and Venkatesh (1997). The CPS was originally developed and tested among breast cancer patients. It has subsequently been widely used not only with breast cancer patients but with several other groups of patients with other medical conditions. In this study, some terms in the CPS were modified to meet the study objectives. Modifications of some terms in the CPS have also been done in previous studies. However, in this study, the CPS was subject to back-translation to Malay as there is no version of the CPS in the Malay language. The rigorous back-translation process suggested by Brislin et al. (1973) was undertaken. During the data collection process, all the participants understood the statements in the CPS.

5.6.2 Limitations of this study

Several limitations in the study processes need to be acknowledged. These limitations were in relation to sample, sampling and measures.

i. Sample and sampling

The small sample size in this study was the main limitation of this study. There were two main reasons for the small sample size: cancellation of surgery and small number of surgical operations undertaken in one of the two hospitals within the data collection period. Surgery was cancelled for several reasons such as limited operation times and patients requiring further treatment, thus pain assessment at Phase 2 could not be conducted and data collection was not completed. Patients who had their surgery cancelled were discharged from hospital and the surgical date was re-scheduled. In future research, depending on timeline and resources, these patients should be followed up for a new surgical date and included for the next data collection.

Despite planning and examining the usual case-load, the two hospitals were not able to provide a large enough sample size. The sample size of this study was small, although the completion rate was quite high. Adding a third hospital in order to have a larger sample size was considered, but unfortunately, the number of breast surgery patients in the third hospital was too low to be considered practical or beneficial. Furthermore, this solution was not practicable due to the logistical problems of travelling great distances between the three hospitals. Future studies should be planned with a greater number of hospitals and more than one researcher to collect the data. In addition, time constraints were experienced due to the scope of this project as a Masters by Research requires completion within a two year timeframe. If the research was not conducted within the constraints of a formal study program, extended data collection would have enabled a larger sample size to be obtained.

The small sample size resulted in a skewed data distribution, making it difficult to provide more precise measures for statistical tests and limiting the power of the study to determine the significant results between culture and pain experiences, analgesic consumption and patient participation in pain management. The small sample size may also have contributed to the absence of statistical differences being identified in some of the results. The distribution of participants in each ethnic group was not large and Chinese and Indian participants were under-represented; therefore, the comparison tests between groups and cause-effect tests between independent and dependent variables could not be performed.

ii. Measures

The visual analogue scale was used to measure participants' pain scores pre-operatively and post-operatively. The VAS is widely used in acute pain research, has an internal reliability of 0.85 to 0.99, is able to provide sensitive data and is easy to measure (Coll,

Ameen, & Mead, 2004; Wewers & Lowe, 1990). In this study, however the researcher experienced some difficulties in using the VAS for pain measurement, particularly at the four hour post-operative pain assessment time point. Although the VAS has demonstrated sensitivity and validity pain scores, it has some disadvantages, especially for patients who are under sedation and have cognitive impairment. During this period, there were some participants who were still experiencing drowsiness and some older patients who experienced difficulties in holding the pen and making a mark on the VAS (Williamson & Hoggart, 2005). It took some time before the scores could be obtained, although care was taken to minimise the possibility that the researcher influenced the data collection. Therefore, alternative pain measurements such as the numerical rating scale (NRS) should be considered.

The distribution of data in the study was skewed, and therefore, non-parametric univariate analyses were used to determine the relationship between culture and pain experience, analgesic consumption and patient participation in pain management. Non-parametric tests are accurate tests; however, they are considered less robust and precise than parametric tests. The findings therefore have less power and precision to be generalised to other types of patients.

iii. Sensitive Type of Study

This study was conducted among a vulnerable group of people; women with cancer patients. Therefore, some patients may have refused to participate due to anxiety about the cancer and/or feeling uncomfortable about disclosing their condition to a researcher (who is not a ward nurse). In response to this situation, a detailed explanation about the study objectives and how the study would be undertaken was provided to patients. The researcher's background as a registered nurse and having experience with cancer patients was also explained. These steps were taken to optimize the chances that patients

would understand and give consent to be involved in the study. Furthermore, patients' family members were always allowed to be with patients during the interview processes to minimise patient anxiety and facilitate feelings of comfort. These situations could promote patients' participation in this study from the beginning until the data collection processes were completed.

This study involved patients from different ethnic groups and the study processes (e.g. during participant recruitment and data collection processes) may have triggered the patients' cultural sensitivities. This study was conducted by a researcher who is from the Malay ethnic group, and because of the different ethnic background, patients who were Chinese and Indian may have refused to be involved in this study. Nonetheless, the researcher did not experience problems related to cultural sensitivity. Good communication between researcher and patients, and an understanding of patients' cultures are required to avoid this problem from happening.

5.7 Recommendations

Despite the limitations in this study, the findings contribute an initial understanding of pain experience, analgesic consumption and patients' participation in pain management among three main ethnic groups in Malaysia. These findings are applicable when making recommendations for nursing practice, education and future research.

5.7.1 Recommendations for Nursing Practice

The findings of the study indicate that post-operative pain is still experienced by a significant number of patients up to two days after surgery. Patients who expected higher post-operative pain also experienced higher pain post-operatively. Several factors have been suggested as influencing post-operative pain; for instance, patient characteristics including gender and age, culture, type of surgery as well as a lack of

knowledge regarding post-operative pain and its management. Therefore, it is recommended that a detailed pre-operative assessment is carried out to determine these factors. This will enable nurses to plan and deliver specific interventions for patients who perceive pain to be a significant problem in the post-operative period.

It is suggested that nurses implement a specific intervention program such as providing patients with adequate information regarding surgery and pain management as soon as patients are admitted to the ward. Providing this information pre-operatively is likely to be beneficial, and this should be continued after surgery. The adequate information should include surgical information, pain management after surgery, the importance of pain reporting, and the benefits of analgesia for an early recovery process. Many studies suggest that by having the information prior to the operation, the patients will be better prepared physically, emotionally and psychologically for their surgery (Blay & Donoghue, 2005; Watt-Watson et al., 2004) as well as during the recovery process (Niemi-Murola et al., 2007). Adequate information will help patients to increase their understanding about their healthcare and increase their willingness to actively participate in their post-operative pain management (Street, et al., 2005). Patients who know what medications will be used and how they will be given are likely to feel safer and this will help them cope with the pain after surgery (Watt-Watson, et al., 2004). This intervention will hopefully minimise both expected and actual pain that they may experience after surgery, and to promote an early recovery process while incorporating culturally-sensitive care to the patient population (Walker, Tan, & George, 1995).

Pain is not only determined from patients' verbal reporting. Previous studies have reported that pain is considered culturally-related and this also can be assessed based on patients' pain behaviours. Non-verbal pain reporting can be determined from patient pain behaviours such as crying, moaning, and grimacing; these can provide some clues to nurses that a patient is in pain (Lipton & Marbach, 1984). Therefore, this study

suggests that nurses need adequate knowledge and skill in assessing both verbal and non-verbal pain reporting in order to deliver effective pain assessment. Effective pain management will facilitate the patients' post-operative recovery process, increase patients' satisfaction with the healthcare and reduce their length of stay in hospital.

As a routine service in HKL, each patient who is undergoing breast cancer surgery is visited by Patient Support Team volunteers from the Breast Cancer Welfare Association of Malaysia. Patients are visited in the ward a day before surgery. The Patient Support Team volunteers are trained to provide face-to-face consultation to patients, and the consultation aims to provide emotional and psychosocial support to patients as well as patients' families. The volunteers share their experiences as breast cancer survivors and patients are free to ask about any issue related to breast cancer. Patients who are newly diagnosed are provided a "comfy kit", consisting of a bag, a temporary prosthesis (if needed by patients), a stress ball for hand exercise after the operation and booklets with breast cancer information. As part of the consultation, it is suggested that volunteers are educated to discuss expected pain and pain experience after surgery with patients with the aim of reducing patient pain expectations before and after surgery. At the time of writing, the Patient Support Team volunteers are only available for breast cancer patients in particular government and private hospitals mainly in Kuala Lumpur (Breast Cancer Welfare Association Malaysia, 2009). Therefore, it is also suggested that this service should be expanded to all breast cancer patients in Malaysia and that the impact of this service should be evaluated.

5.7.2 Recommendations for Nursing Education

Pre- and post-operative pain assessment and education are recommended to be provided to patients. In order to implement both pre- and post-operative education effectively, nurses first must have adequate knowledge and skills. Nursing knowledge and skills in

pain management should be considered a priority; moreover, Malaysian nurses are typically caring for patients from multicultural backgrounds. To supplement the syllabi taught in nursing schools, nursing education focused on the topics of pain and culture and advanced courses on pain management, particularly for registered nurses, are recommended. This will enhance nurses' knowledge and skills related to pain management and pre- and post-operative care. Hence, nurses will be able to effectively educate and disseminate information about these matters to patients and the public. Nurses who are able to understand a patient's culture adequately will be able to plan culturally-sensitive education programs for patients. Such strategies may improve the patients' knowledge, attitudes and perceptions towards pain and pain management (Wong, 2009).

5.7.3 Recommendations for Future Nursing Research

It appears that other similar studies in this area are limited or may not be widely published. In Malaysia, most of the previously published research related to breast cancer has been carried out by medical professionals and in medical contexts (Hisham & Yip, 2004; Pathy, et al., 2011; Taib, et al., 2007; Yip, 2009). Therefore, more studies on post-surgical nursing care are required.

Future research with a larger sample size across multiple hospital sites is required to improve statistical power. It is suggested that this study is replicated for other types of surgery and for male subjects to generate stronger results. In this study, the higher expectation of post-operative pain scores that was determined during pre-operative assessment influenced the higher pain scores post-operatively. In relation to this finding, it is recommended that pre-operative intervention studies on reducing the expectation of pain should be conducted with the influence on post-operative pain being evaluated. Further exploration of the influence of culture on patients' pain perceptions and their

participation in pain management by using a qualitative study design, as well as an observational study of patients' pain behaviours among different cultures, are suggested. In addition, as religion and culture may be interchangeable or interact with each other, future research on the influence of religion and culture on post-operative pain experience is recommended. Factors that potentially influence post-operative pain, such as patients' demographic characteristics, culture, psychological traits and patients' knowledge about pain management, should also be explored in future research in order to examine the influence of these factors on different groups of patients and in different settings where patients experience pain.

5.8 Summary

The biocultural pain model was used as a framework in this study and proposes that culture influences the post-operative pain experienced by patients. The findings of this study partially support the relationship proposed by the model. The findings of this study found that higher post-operative pain was expected and experienced among participants. The participants who expected higher post-operative pain pre-operatively did experience higher pain in the post-operative periods. However, being a Malay, Chinese or Indian had no influence on the expected and experienced post-operative pain. The passive decision-making role was most preferred by participants and there appears to be a relationship between culture and preferred role, although given the limitation of sample size, this needs to be further explored.

This study also found that the culture of Malay, Chinese and Indian ethnic groups did not influence analgesic consumption and patients' participation in pain management. The number of participants from the Chinese and Indian ethnic groups was far lower than participants from the Malay ethnic group, making it difficult to detect any significant relationship between these variables.

Based on previous studies, several factors such as patients' characteristics, attitudes, unavailability of analgesic on time and staff workload may potentially influence the above findings. Based on the study findings, it is suggested that patients are provided with pre-operative interventions including pain assessment and adequate surgical and pain management information in order to obtain optimal participation in their health care after surgery. It is also suggested that nurses improve their knowledge and skills on pain management by attending pain management courses. Finally, future research involving a larger group of patients and expansion to multiple types of surgery is recommended.

CHAPTER SIX

CONCLUSION

6.1 Introduction

The review of literature indicates that many patients are still experiencing high levels of pain after surgery and this shows that effective post-operative pain management remains a challenge. Several factors have been identified as influencing post-operative pain, including gender, age, psychological factors such as anxiety and distress, and types of surgery. Culture has been suggested to influence post-operative pain but the findings have not been consistent and have been incompletely explored, particularly in the Malaysian cultural setting. Culture may also be related to patients' participation in pain management, suggesting that different cultures play a different role in healthcare decision-making. Unnecessary pain after surgery may lead to chronic pain, and expose patients to anxiety and depression. Thus, these conditions will slow the post-operative recovery process, result in a longer hospital stay, and increase hospital costs. Therefore, effective pain assessment and pain management are required to minimise the complications and facilitate the post-operative recovery process.

This study was conducted to inform the pain assessment and management guidelines among post-operative patients in the Malaysian health care setting. The present study aimed to determine the relationship between the three predominant cultures in Malaysia namely Malay, Chinese and Indian, on pain experience, analgesic consumption and participation in pain management in women after breast cancer surgery. Breast cancer is the number one cancer among Malaysian women as well as the most common cancer in Malaysia. The prevalence of new cases is increasing every year. The biocultural pain model developed by Bates (1987) was used as a study framework to guide the study

objectives. The model proposes that social comparison and social learning processes within a culture have an influence on the person's pain experience and behaviour. This chapter outlines the conclusions of the study and highlights the important elements of the study including how this study might influence nursing practice, education and research.

6.2 Study Findings and Contribution to Nursing Practice, Education and Research

6.2.1 Pain Assessment for Expected Post-operative Pain

This study reinforces past studies that post-operative pain is expected, and that high post-operative pain is experienced and not well managed. The findings of this study showed a significant relationship between patients' expectation of higher post-operative pain and their experience of higher actual post-operative pain after breast cancer surgery. However, no significant relationship was found between culture and pain experience, analgesic consumption and patients' participation in pain management. From these findings, the study suggests that a detailed pre-operative assessment should be conducted. The pre-operative assessment should determine expected post-operative pain as well as other factors that contribute to high post-operative pain; for instance, patient's demographic characteristics and anxiety status. Specific intervention programs such as providing patients with adequate information about surgery and pain management after surgery, and educating breast cancer volunteers regarding patients expected and experienced pain after surgery should be planned and implemented. The intervention programs should aim to reduce both expected and actual post-operative pain. The intervention programs should also focus on increasing patients' participation in pain management after surgery.

Pain assessment should be routinely and regularly conducted after operations based on hospital protocols. In addition, it is suggested that nurses use a culturally-sensitive approach in their pain assessment. Previous studies show that pain is culturally-related and is expressed in various ways such as stoic and emotional (Davidhizar & Giger, 2004). Asian people have been shown to display stoic behaviour in expressing and verbalising their pain (Narayan, 2010). These cultural conditions result in complexities in pain assessment. Therefore, nurses should have knowledge and skills in pain assessment that incorporates cultural understanding. It is suggested that nurses use strategies to empower and educate patients to report their pain immediately. This is important for pain relief to avoid complications and facilitate a successful post-operative recovery process.

6.2.2 Education to promote an active role

Many participants in this study preferred the passive role in participating in analgesia decision-making. A significant relationship was found between Malay women and the passive role. However, no significant relationship was found between other ethnic groups and other preferred roles. The lack of knowledge regarding analgesia and pain management may be related to participants' lower educational background, and this is likely to influence their preferred choice of not being actively involved in analgesia decision-making. Past studies show that patients who had some knowledge about analgesia and pain management played an active and collaborative role (Manias & Williams, 2008) and patients who played an active role were likely to be committed to the treatment care plans, experience less depression and anxiety, show a greater improvement in their healthcare and have greater satisfaction with their care plan (Street, et al., 2005).

Adequate information on surgery, pain education, analgesia and pain management should be provided to patients. This information should be delivered adequately based on the patients' levels of understanding; so that, patients can understand the information well. This process will promote two-way communications between patients and nurses/clinicians, and encourage patients to raise questions, hence creating active involvement among patients. The information will encourage and empower patients to actively participate in their care management; so that effective post-operative pain management will be achieved.

6.3 Summary

In summary, the findings of the study show that breast cancer patients experience high levels of pain post-operatively and this is related to the pre-operative expectation about pain. In addition, very few patients identified a desire for an active role in their pain management. The findings from this study may provide some insights for nurses concerning nursing care and may help to inform pain assessment and pain management guidelines. Interventions in the form of detailed pre- and post-operative pain assessments and the provision of pre-operative pain information are suggested to reduce both high expected and actual post-operative pain, and to encourage patients to actively participate in their post-operative pain management.

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APPENDICES

APPENDIX A

1. Modification of the Control Preferences Scale (CPS) made in Previous Studies

Studies		Degner <i>et al.</i> (1997) (The original CPS)	Florin <i>et al.</i> (2006)	Cox <i>et al.</i> (2007)
Preferred Roles	Active	<p>A) I prefer to make the decision about which treatment I will receive.</p> <p>B) I prefer to make the final decision about my treatment after seriously considering my doctor's opinion.</p>	<p>E) I prefer to make the final decision about which treatment I will receive.</p> <p>D) I prefer to make the final decision about my treatment after seriously considering my nurse's opinions.</p>	<p>A) I would prefer that I make the decision about medicines I take for this problem.</p> <p>B) I would prefer that I make the final decision about medicines I take for this problem after seriously considering my doctor's opinion.</p>
	Collaborative	<p>C) I prefer that my doctor and I share responsibility for deciding which treatment is best for me.</p>	<p>C) I prefer that my nurses and I share responsibility for deciding which treatment is best for me.</p>	<p>C) I would prefer that my doctor and I share responsibility for deciding about medicines I take for this problem.</p>
	Passive	<p>D) I prefer that my doctor makes the final decision about which treatment will be used, but seriously considers my opinion.</p> <p>E) I prefer to leave all decisions regarding treatment to my doctor.</p>	<p>D) I prefer that my nurses make the final decision about which treatment will be used, but seriously consider my opinion.</p> <p>E) I prefer to leave all decisions regarding the treatment to my nurses.</p>	<p>D) I would prefer that my doctor makes the final decision about medicines I take for this problem, but seriously considers my opinion.</p> <p>E) I would prefer that my doctor makes all decisions about medicines I take for this problem.</p>

2. Modification of the Control Preferences Scale (CPS) made in Present Study

Preferred Roles	CPS in present study
Active	A) I prefer to make the decision about which analgesic I will receive. B) I prefer to make the final decision about my analgesic after seriously considering my doctor's/nurse's opinion
Collaborative	C) I prefer that my doctor /nurse and I share responsibility for deciding which analgesic is best for me.
Passive	D) I prefer that my doctor/nurse make the final decision about which analgesic will be used, but seriously considers my opinion. E) I prefer to leave all decisions regarding analgesic to my doctor/nurse.

APPENDIX B

Questionnaire (Bilingual)

1. Part A

Bahagian A: Data Demografi (*Temubual bersama responden*)
Part A: Demographic Data (*Participant interview*)

- i. Umur (*Age*) : _____ tahun (years)
- ii. Etnik (*Ethnicity*) : Melayu ☐ Cina ☐ India ☐
Malay Chinese Indian
- iii. Agama (*Religion*) : Islam ☐ Buddha ☐ Hindu ☐
Islam Buddha Hindu
 Kristian ☐ Lain-lain ☐
Christian Others
- iv. Tahap pendidikan (*Education level*) : Sekolah rendah (*Primary school*) ☐
 Menengah rendah (*Lower secondary school*) ☐
 Menengah atas (*Upper secondary school*) ☐
 Pendidikan tinggi (*Tertiary education*) ☐
 Pendidikan tidak formal (*No formal education*) ☐
- v. Jumlah pendapatan keluarga (sebulan) (*Total family income (monthly)*) : <RM 1000 ☐
 RM 1000-RM 2000 ☐
 RM 2001-RM 3000 ☐
 RM 3001-RM 4000 ☐
 RM 4001-RM 5000 ☐
 RM 5001-RM 10,000 ☐
 RM 10,001-RM 20,000 ☐
 > RM 20,000 ☐

2. Part B

Bahagian B: Maklumat Berkaitan Kanser Payudara (*Temubual bersama responden*) **Part B: Breast Cancer Status** (*Participant interview*)

- i. Status kanser payudara : Kes baru (*New case*) ☐
(*Breast cancer status*)
Kes ulangan (*Recurrent case*) ☐
(Jika YA, sila jawab soalan ii, iii, dan iv)
(*if YES, please answer questions ii, iii and iv*)
- ii. Tarikh diagnosis : _____
kanser
terdahulu
(*Date of previous breast cancer diagnosed*)
- iii. Tarikh pembedahan : _____
terdahulu
(*Date of previous surgery*)
- iv. Bahagian kanser lama : Payudara Kanan (*Right breast*) ☐
(*Site of previous cancer*) Payudara Kiri (*Left breast*) ☐
- v. Bahagian kanser baru : Payudara Kanan (*Right breast*) ☐
(*Site of current cancer*) Payudara Kiri (*Left breast*) ☐

3. Part C

Bahagian C: Penilaian Sebelum Pembedahan (*Temubual bersama responden*)
Part C: Preoperative Assessment (*Participant interview*)

Sila letakkan tanda yang menggambarkan tahap kesakitan anda di atas garisan di bawah
(*Please place a mark that indicates your pain experience on the line that describes below*)

i- Penilaian tahap kesakitan (*Pain assessment*)

Tarikh (<i>Date</i>): _____	Masa (<i>Time</i>): _____
<p>Apakah tahap kesakitan yang paling teruk, yang anda jangka, akan anda alami selepas pembedahan? (<i>What is the worst pain that you expect to feel after the operation?</i>)</p> <div style="text-align: center; margin: 20px 0;">0 _____ 10</div> <div style="display: flex; justify-content: space-between;"><div style="width: 45%; text-align: center;">Tiada rasa sakit (<i>No pain</i>)</div><div style="width: 45%; text-align: center;">Rasa sakit yang sukar digambarkan (<i>Worst pain ever</i>)</div></div>	

4. Part D

Bahagian D: Maklumat Pembedahan (*Rekod perubatan responden*)
Part D: Surgical information (*Participant medical record*)

- i. Diagnosis kanser/ tahap (*Cancer diagnosis/Stage*) : _____
- ii. Tarikh pembedahan (*Date of current surgery*) : _____
- iii. Jenis pembedahan (*Type of surgery*) :
- | | |
|---|--------------------------|
| Lumpectomy | <input type="checkbox"/> |
| Partial/segmental Mastectomy | <input type="checkbox"/> |
| Total mastectomy | <input type="checkbox"/> |
| Modified radical mastectomy | <input type="checkbox"/> |
| Radical mastectomy without axillary clearance | <input type="checkbox"/> |
| Radical mastectomy with axillary clearance | <input type="checkbox"/> |
| Mastectomy with breast reconstruction | <input type="checkbox"/> |
- iv. Tahap ASA (*ASA level*) :
- | | | | | | |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | E |
|---|---|---|---|---|---|
- v. Jangka masa pembedahan (*Length of surgery*)
- Masa mula (*Time started*) _____
- Masa tamat (*Time finished*) _____

5. Part E

Bahagian E: Penilaian tahap kesakitan selepas pembedahan dan penggunaan analgesik (*Temubual dan rekod ubatan responden*)
Part E- Postoperative pain assessment and analgesic consumption (*Participant interview and medication record*)

Tahap Kesakitan Selepas Pembedahan <i>Pain score after surgery (Based on VAS 0- 10cm)</i>	Jenis analgesik <i>(Type of analgesic)</i>	Tarikh Mula <i>(Date Started)</i>	Dos <i>(Dosage)</i>	Tarikh Tamat <i>(Date completed)</i>	Jumlah Keseluruhan Dos <i>(Total Dosage)</i>	Kehadiran Ahli Keluarga <i>(Presence of family member)</i> (√)	
						YA (Yes)	Tidak (No)
4 jam (4hrs)							
24 jam (24hrs)							
48 jam (48hrs)							

APPENDIX C

1. Back-translation Outcome: The differences of English-Malay-English version

Question Number	Difference	Comments	Decision
3	'participation' used in original, 'involvement' used in back-translation	Need to check Malaysian meaning	'penglibatan' is appropriate for participation, so no change required
6	'others' has been added to back-translation	Probably useful to have 'others' added to original	'others' not required as only enrolling the 3 ethnic groups in study
7	'others' has been added to back-translation	Probably useful to have this added to original	Yes, add 'others' to original and Malay translation
8	'achievement' has been added to back-translation	Not sure what prompted this to be added	Achievement was added due to concern that some patients may have no formal education, so 'no formal education' to be added as an optional response to both languages
13	'monthly' added to back-translation	This may be appropriate depending on how income is usually reported in Malaysia	'monthly' added in Malay translation – income is only ever reported based on monthly income therefore appropriate to include & helps with clarity
15	'stage' used in original, 'level' used in back-translation	These terms are probably not different, but need to check the meaning of the Malaysian term	'tahap' could mean 'stage' or 'level' and is the correct term for 'cancer stage' (published papers in Malay checked), therefore no change required

(Continue table)

Question Number	Difference	Comments	Decision
19 & 20	'site of cancer' used on original, 'cancer part / type' used on back-translation	Need to check whether they are different – probably not	No difference in these terms in Malay so no change required
28 – 30	'prefer' has been omitted from the back-translation	Need to look at where this change occurred and correct as it probably alters the meaning	28 – Malaysian translation not exact, so retranslated as 'Apakah pilihan yang paling anda sukai dalam ...' with mean 'what is your most preferred option/role....' 29 & 30 – Malay translation is correct, omission of 'prefer' occurred in back-translation so no change required
36	'collaborative' is used in original, 'cooperative' is used in back-translation	Need to look at whether these words mean the same in the Malaysian translation	These terms mean the same thing in Malay so no change required
40 & 42	'date' instead of 'time'	Need to ensure Malaysian translation is correct – but probably not an issue as researcher will collect data	Error occurred in back-translation, Malay is correct so no change required
42	'total dosage' in original, 'amount of dose' in back-translation	Not sure that 'amount of dose' reflects 'total' but probably not an issue as researcher will collect data	Malay term made more accurate by using the term 'jumlah keseluruhan' to ensure meaning encompasses concept of 'total'

APPENDIX D

RESEARCH ETHICS APPROVAL

- 1.** Approval of Griffith University Human Research Ethics
- 2.** Approval of Malaysia Medical Research and Ethics Committee (MREC)
- 3.** Approval Letter of Hospital Putrajaya
- 4.** Approval Letter of Hospital Kuala Lumpur

1. Approval of Griffith University Human Research Ethics



Please contact: Mr Chris Rose'Meyer
Telephone: +61 (0)7 5552 7227
Facsimile: +61 (0)7 5552 9058
Email: c.rosemeyer@griffith.edu.au

Office for Research

Nathan campus, Griffith University
170 Kessels Road
Nathan, Queensland 4111
Australia

Telephone +61 (0)7 3735 5456
Facsimile +61 (0)7 3735 7994

www.griffith.edu.au

15 November 2010

TO WHOM IT MAY CONCERN

Griffith University Human Research Ethics Application – NRS/23/10/HREC

This is to confirm that Human Research Ethics Application NRS/23/10/HREC titled "The influence of culture on pain experience and participation in pain management among Malaysian patients after breast surgery" has been reviewed and received approval from the Griffith University Human Research Ethics Committee (HREC) on 15 November 2010.

The authorisation for the commencement of this research has been issued from 1 December 2010 to 21 December 2011.

The HREC is constituted and operates in accordance with the *National Statement on Ethical Conduct in Human Research*.

Please do not hesitate to contact me if you have any further queries about this matter.

Regards

A handwritten signature in black ink that reads "C. M. Rose Meyer".

Chris Rose'Meyer
Acting Senior Manager, Research Ethics and Integrity
Office for Research

2. Approval of Malaysia Medical Research and Ethics Committee (MREC)



PEJABAT TIMBALAN KETUA PENGARAH KESIHATAN
OFFICE OF THE DEPUTY DIRECTOR-GENERAL OF HEALTH
(PENYELIDIKAN & SOKONGAN TEKNIKAL)
(RESEARCH & TECHNICAL SUPPORT)
KEMENTERIAN KESIHATAN MALAYSIA
MINISTRY OF HEALTH MALAYSIA
Aras 12, Blok E7, Parsel E, Presint 1
Level 12, Block E7, Parcel E, Precinct 1
Pusat Pentadbiran Kerajaan Persekutuan
Federal Government Administrative Centre
62590 PUTRAJAYA

Tel. : 03 88832543
Faks : 03 88895184

JAWATANKUASA ETIKA & PENYELIDIKAN
PERUBATAN
KEMENTERIAN KESIHATAN MALAYSIA
d/a Institut Pengurusan Kesihatan
Jalan Rumah Sakit, Bangsar
59000 Kuala Lumpur

Ruj. Kami : (2) dlm.KKM/NIHSEC/08/0804/P10-723
Tarikh : 16 Februari 2011

Cik Salimah Japar
Fakulti Kejururawatan & Kebidanan
Universiti Griffith

Puan,

NMRR-10-1092-7377

**THE INFLUENCE OF CULTURE ON PAIN EXPERIENCE AND PARTICIPATION IN PAIN
MANAGEMENT AMONG MALAYSIAN PATIENTS AFTER BREAST SURGERY**

**Lokasi Projek : Hospital Kuala Lumpur, Hospital Tengku Ampuan Rahimah dan Hospital
Putrajaya**

Dengan hormatnya perkara di atas adalah dirujuk.

2. Jawatankuasa Etika & Penyelidikan Perubatan (JEPP), Kementerian Kesihatan Malaysia (KKM) mengambil maklum bahawa projek tersebut adalah untuk memenuhi keperluan akademik Program Sarjana di Universiti Griffith, Australia.

3. Sehubungan dengan ini, dimaklumkan bahawa pihak JEPP KKM tiada halangan, dari segi etika, ke atas pelaksanaan projek tersebut. JEPP mengambil maklum bahawa kajian ini tidak melibatkan sebarang intervensi dan hanya menggunakan borang soal-selidik serta temuramah untuk mengumpul data kajian. Segala rekod dan data pesakit adalah SULIT dan hanya digunakan untuk tujuan kajian dan semua isu serta prosedur mengenai *data confidentiality* mesti dipatuhi. Kebenaran daripada Pengarah Hospital di mana kajian akan dijalankan mesti diperolehi terlebih dahulu sebelum kajian dijalankan. Puan perlu akur dan mematuhi keputusan tersebut.

4. Laporan tamat kajian dan sebarang penerbitan dari kajian ini hendaklah dikemukakan kepada Jawatankuasa Etika & Penyelidikan Perubatan selepas tamatnya projek ini.

Sekian terima kasih.

BERKHIDMAT UNTUK NEGARA

Saya yang menurut perintah,

(DATO' DR CHANG KIAN MENG)

Pengerusi
Jawatankuasa Etika & Penyelidikan Perubatan
Kementerian Kesihatan Malaysia

3. Approval Letter of Hospital Putrajaya

Versi 2.0 Tarikh: 15 Feb 2008

INVESTIGATOR'S AGREEMENT, HEAD OF DEPARTMENT'S AND INSTITUTIONAL APPROVAL

Persetujuan Penyelidik, Pengesahan Ketua Jabatan dan Institusi

This document is intended for online submission for purpose of formal research review and approval. It is to be used *in lieu* of other equivalent manually printed document such as Borang JTP/KKM 1-2 and Borang JTP/KKM 3. After completing the form below and obtaining the required signatures, please scan this document and submit online.


Dokumen ini adalah untuk penghantaran atas talian (online) mengikut prosedur rasmi semakan dan persetujuan penyelidikan. Borang ini dikeluarkan sebagai gantian dokumen kebenaran manual yang serupa seperti Borang JTP/KKM 1-2 dan Borang JTP/KKM 3. Selepas melengkapkan borang di bawah dan mendapatkan tanda tangan yang diperlukan, sila imbasan dokumen ini dan hantar atas talian.

Research Title: [Tajuk Penyelidikan]	THE INFLUENCE OF CULTURE ON PAIN EXPERIENCE AND PARTICIPATION IN PAIN MANAGEMENT AMONG PATIENTS AFTER BREAST SURGERY.
Protocol Number if available: [Nombor Protokol jika ada]	~ NA ~

Investigator agreement [Persetujuan penyelidik]

I have understood the above titled proposed research and I agree to participate in the research as an investigator.

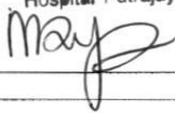
Saya faham cadangan penyelidikan yang bertajuk di atas dan saya bersetuju mengambil bahagian dalam projek tersebut sebagai penyelidik

Name of Investigator [Nama Penyelidik]	SALIMAH BINTI JAPAR
IC number [Nombor KP]	791214 -11 -5000
Institution [Institusi]	SCHOOL OF NURSING AND MIDWIFERY, GRIFFITH UNIVERSITY NATHAN CAMPUS, 170 KESSELS ROAD, QLD 4111, AUSTRALIA
Signature & Official stamp [Tandatangan dan Cop Rasmi]	
Date [Tarikh]	22 / 10 / 2010

Head of Department Agreement [Persetujuan Ketua Jabatan]

I agree to allow the above named investigator to conduct or to participate in the above titled research

Saya membenarkan pegawai yang bernama di atas untuk menjadi penyelidik dalam projek penyelidikan tersebut di atas.

Name of Head [Nama Ketua]	DR. NORMAYAH KITAN
Name of Department and Institution [Jabatan dan Institusi]	Pakar Bedah Breast & Endocrine Jabatan Pembedahan Hospital Putrajaya
Signature & Official stamp [Tandatangan dan Cop Rasmi]	
Date [Tarikh]	

Institutional approval [Pengesahan Institusi]

This section maybe omitted if one of the NIH institute is authorized to approve on behalf of institution. Refer NIH for details [Bahagian ini tidak perlu jika salah satu daripada institusi NIH diberi kuasa pengesahan bagi pihak institusi tersebut. Rujuk NIH untuk maklumat lanjut]

I agree to allow the investigator(s) named above to conduct or to participate in the above titled research. Where applicable, I further agree to allow my institution to be one of the sites participating in the research.

Saya membenarkan pegawai yang bernama di atas menjalankan penyelidikan selaku penyelidik dalam projek penyelidikan tersebut. Jika berkenaan, saya juga membenarkan institusi ini mengambil bahagian dalam projek tersebut.

Name of Director [Nama pengarah]	
Name of Institution [Nama Institusi]	
Signature & Official stamp [Tandatangan dan Cop Rasmi]	DR NORAZI BINTI MOHD SAID MMC FULL Registration No: 28151 PENGARAH HOSPITAL PUTRAJAYA
Date [Tarikh]	

4. Approval Letter of Hospital Kuala Lumpur

Ver 2.0 Tarikh: 15 Feb 2008

INVESTIGATOR'S AGREEMENT, HEAD OF DEPARTMENT'S AND INSTITUTIONAL APPROVAL

Persetujuan Penyelidik, Pengesahan Ketua Jabatan dan Institusi

This document is intended for online submission for purpose of formal research review and approval. It is to be used in lieu of other equivalent manually printed document such as Borang JTP/KKM 1-2 and Borang JTP/KKM 3. After completing the form below and obtaining the required signatures, please scan this document and submit online.

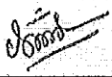
Dokumen ini adalah untuk penghantaran atas talian (online) mengikut prosedur rasmi semakan dan persetujuan penyelidikan. Borang ini dikeluarkan sebagai gantikan dokumen kebenaran manual yang serupa seperti Borang JTP/KKM 1-2 dan Borang JTP/KKM 3. Selepas melengkapkan borang di bawah dan mendapatkan tanda tangan yang diperlukan, sila imbas dan hantar atas talian.

Research Title: [Tajuk Penyelidikan]	THE INFLUENCE OF CULTURE ON PAIN EXPERIENCE AND PARTICIPATION IN PAIN MANAGEMENT AMONG PATIENTS AFTER BREAST SURGERY.
Protocol Number if available: [Nombor Protokol jika ada]	~ NA ~

Investigator agreement [Persetujuan penyelidik]

I have understood the above titled proposed research and I agree to participate in the research as an investigator.


Saya faham cadangan penyelidikan yang bertajuk di atas dan saya bersetuju mengambil bahagian dalam projek tersebut sebagai penyelidik

Name of Investigator [Nama Penyelidik]	SALIMAH BINTI JAPAR
IC number [Nombor KP]	791214 -11 -5000
Institution [Institusi]	SCHOOL OF NURSING AND MIDWIFERY, GRIFFITH UNIVERSITY NATHAN CAMPUS, 170 KESSELS ROAD, QLD 4111, AUSTRALIA
Signature & Official stamp [Tandatangan dan Cop Rasmi]	
Date [Tarikh]	22/10/2010

Head of Department Agreement [Persetujuan Ketua Jabatan]

I agree to allow the above named investigator to conduct or to participate in the above titled research

Saya membenarkan pegawai yang bernama di atas untuk menjadi penyelidik dalam projek penyelidikan tersebut di atas.

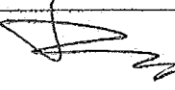
Name of Head [Nama Ketua]	MS. NOR AINA BT EMRAN (MMC: 28859)
Name of Department and Institution [Jabatan dan Institusi]	MBS(Mal), MS (UKM) Head of Unit & Senior Consultant Surgeon Breast and Endocrine Surgery Unit Department of General Surgery Hospital Kuala Lumpur
Signature & Official stamp [Tandatangan dan Cop Rasmi]	
Date [Tarikh]	24/10/2010

Institutional approval [Pengesahan Institusi]

This section may be omitted if one of the NIH institute is authorized to approve on behalf of institution. Refer NIH for details [Bahagian ini tidak perlu jika salah satu daripada institusi NIH diberi kuasa pengesahan bagi pihak institusi tersebut. Rujuk NIH untuk maklumat lanjut]

I agree to allow the investigator(s) named above to conduct or to participate in the above titled research. Where applicable, I further agree to allow my institution to be one of the sites participating in the research.

Saya membenarkan pegawai yang bernama di atas menjalankan penyelidikan selaku penyelidik dalam projek penyelidikan tersebut. Jika berkenaan, saya juga membenarkan institusi ini mengambil bahagian dalam projek tersebut.

Name of Director [Nama pengarah]	
Name of Institution [Nama Institusi]	
Signature & Official stamp [Tandatangan dan Cop Rasmi]	
Date [Tarikh]	10/12/10

DR. DING LAY MING (MPM: 27260)
Timbalan Pengerah (Parubotan) II
b.p. Pengerah
Hospital Kuala Lumpur

APPENDIX E

1. Participant Information Sheet



PARTICIPANT INFORMATION SHEET

School of Nursing and Midwifery

Telephone: +61 7 3735 5406

Facsimile: +61 7 3735 5431

Email: www.griffith.edu.au

School of Nursing and Midwifery, Health
Nathan Campus, Griffith University
170 Kessels Road, QLD 4111, Australia

TITLE OF RESEARCH PROJECT

The influence of culture on pain experience and participation in pain management among Malaysian patients after breast surgery.

CHIEF RESEARCHERS:

Professor Leanne Aitken, School of Nursing and Midwifery, Griffith University, Nathan Campus, 170 Kessels Road, QLD 4111, Australia. Phone: +61 7 3176 7256, email: l.aitken@griffith.edu.au. Principal Supervisor.

Dr. Brigid Mary Gillespie, School of Nursing and Midwifery, Griffith University, Gold Coast Campus. Parklands Drive, Southport QLD 4215, Australia. Associate Supervisor.

STUDENT RESEARCHER:

Salimah Japar, School of Nursing and Midwifery, Griffith University, Nathan Campus, 170 Kessels Road, QLD 4111, Australia. Master of Philosophy student.

STUDENT RESEARCH PROJECT: The study is conducted by Ms Salimah Japar to fulfil the requirement of Master of Philosophy Nursing programme (Programme Code: 5001)

BACKGROUND

Postoperative pain may be influenced by factors such as age, gender, psychological factors, preoperative information and types of surgery. Additional factors that may also be related to pain include culture and ethnicity. This study aims to determine the influence of culture on patient pain experience, analgesic consumption and patient participation in pain management after breast surgery.

PROCEDURE

As a participant in this study you will be asked to indicate your pain experience after surgery and preferred role in pain management. You will be interviewed by the researcher once before the surgery and three times after the surgery (4hrs, 24hrs and 48hrs after surgery). The interview sessions will take approximately 5 to 15 minutes to complete. With your approval your immediate medical and medication records will be accessed by the student researcher to collect the information about surgery and medication prescription.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. You have a right to refuse to participate and withdraw from this study at anytime without compromising your care.

BENEFIT

Participation in this study is not likely to result in direct benefit to yourself. However, the information gathered from this study may have a longer term benefit in increasing nursing knowledge of pain management with the result of improved pain management for future patients.

CONFIDENTIALITY

Your identification will not be disclosed in any reports or publications. All the data will be kept confidential and in a locked filing cabinet in the School of Nursing and Midwifery at Griffith University for a maximum of five years before being destroyed.

RISK

This study does not involve any physical test and is considered to be low or minimal risk. We invite you to participate in a series of short interviews that are unlikely to cause you distress.

LEGAL PRIVACY STATEMENT

The information collected is confidential and will not be disclosed to third parties without your consent, except to meet government, legal or other regulatory authority requirements. A de-identified copy of these data may be used for other research purposes. However, your anonymity will all times be safeguarded. For further information consult the University's privacy plan at <http://www.griffith.edu.au/about-griffith/plans-publications/griffith-university-privacy-plan> or telephone +61 7 3735 5585.

FURTHER QUESTIONS

If you have any further questions in relation to this research please contact the researcher:

Salimah Japar, RN

Master of Philosophy candidate

Phone: 019-9230830 (MSIA)/ +61421495668 (AUS)

Email: salimah.japar@student.griffith.edu.au/salijapar@yahoo.com

CONCERNS ABOUT ETHICAL CONDUCT

This study was reviewed and approved by Griffith University in accordance with the *National Statement on Ethical Conduct in Human Research*, and also by Ministry of Health Malaysia Research Ethics Committee (MREC). If you have any concerns about ethics of this study, please contact the following:

Medical Research Ethics Committee (MREC)

NIH Secretariat

Ministry of Health Malaysia,

c/o Institute for Health Management,

Jalan Rumah Sakit, Bangsar,

50900 Kuala Lumpur.

Phone: 03 - 2287 4032

Fax: 03 - 2287 4030

Email: nihsec@nih.gov.my

URL: <http://www.nih.gov.my>

Dr Gary Allen

Manager, Research Ethics,

Office for Research

Bray Centre, Griffith University

Kessel Road, Nathan, Qld 4111.

Phone: +61 7 3735 5585

Email: research-ethics@griffith.edu.au

2. Consent to Participate in Research Study



School of Nursing and Midwifery

Telephone: +61 7 3735 5406

Facsimile: +61 7 3735 5431

Email: www.griffith.edu.au

CONSENT TO PARTICIPATE IN RESEARCH STUDY

Nathan Campus, Griffith University
School of Nursing and Midwifery, Health
Nathan Campus, Griffith University
170 Kessels Road, QLD 4111, Australia

CHIEF RESEARCHERS:

Professor Leanne Aitken, School of Nursing and Midwifery, Griffith University, Nathan Campus, 170 Kessels Road, QLD 4111, Australia. Phone: +61 7 3176 7256, email:

l.aitken@griffith.edu.au. Principal Supervisor

Dr. Brigid Mary Gillespie, School of Nursing and Midwifery, Griffith University, Gold Coast Campus. Parklands Drive, Southport QLD 4215, Australia. Associate Supervisor

STUDENT RESEARCHER:

Salimah Japar, School of Nursing and Midwifery, Griffith University, Nathan Campus, 170 Kessels Road, QLD 4111, Australia. Master of Philosophy student

TITLE OF STUDY: The influence of culture on pain experience and participation in pain management among Malaysian patients after breast surgery.

I have read the information form and understand that:

- This research is to investigate my postoperative pain experiences, analgesic consumption and their participation in pain management after breast surgery.
- I am being asked to answer the questions about my pain experiences and participation in pain management
- My medical and medication records will be accessed to collect the information about the surgery and medication that I have received
- The questionnaire will take me approximately 5 to 15 minutes
- My participation is voluntary and I may discontinue my participation at anytime without penalty or explanation
- Any reports or publications from this study will be reported in general and will not involve any identifying features
- The data will be kept confidential at all times and in a locked filing cabinet in the chief investigator's office for a period of 5 years before being destroyed
- A report about study findings will be made available to me on request.
- I understand that I can contact the Ministry of Health Malaysia Medical Research Ethics Committee on 03 22874032 or the Manager, Research Ethics, at Griffith University Human Research Ethics Committee on +61 7 3735 5585 (or research-ethics@griffith.edu.au) if I have any concerns about the ethical conduct of the project.

I have read the information sheet and the consent form. I agree to participate in this study and give my consent freely. I understand that the study will be carried out as described in the information statement, a copy of which I have retained. I realise that whether or not I decide to participate is my decision and will not affect my care. I also realise that I can withdraw from the study at any time and that I do not have to give any reasons for withdrawing. I have had all

questions answered to my satisfaction.

Participant's : IC Number :
Name

Signature/ Date :

I have explained the aims, procedures, potential risks and benefits of the above study and answered any questions to the satisfaction of the participant.

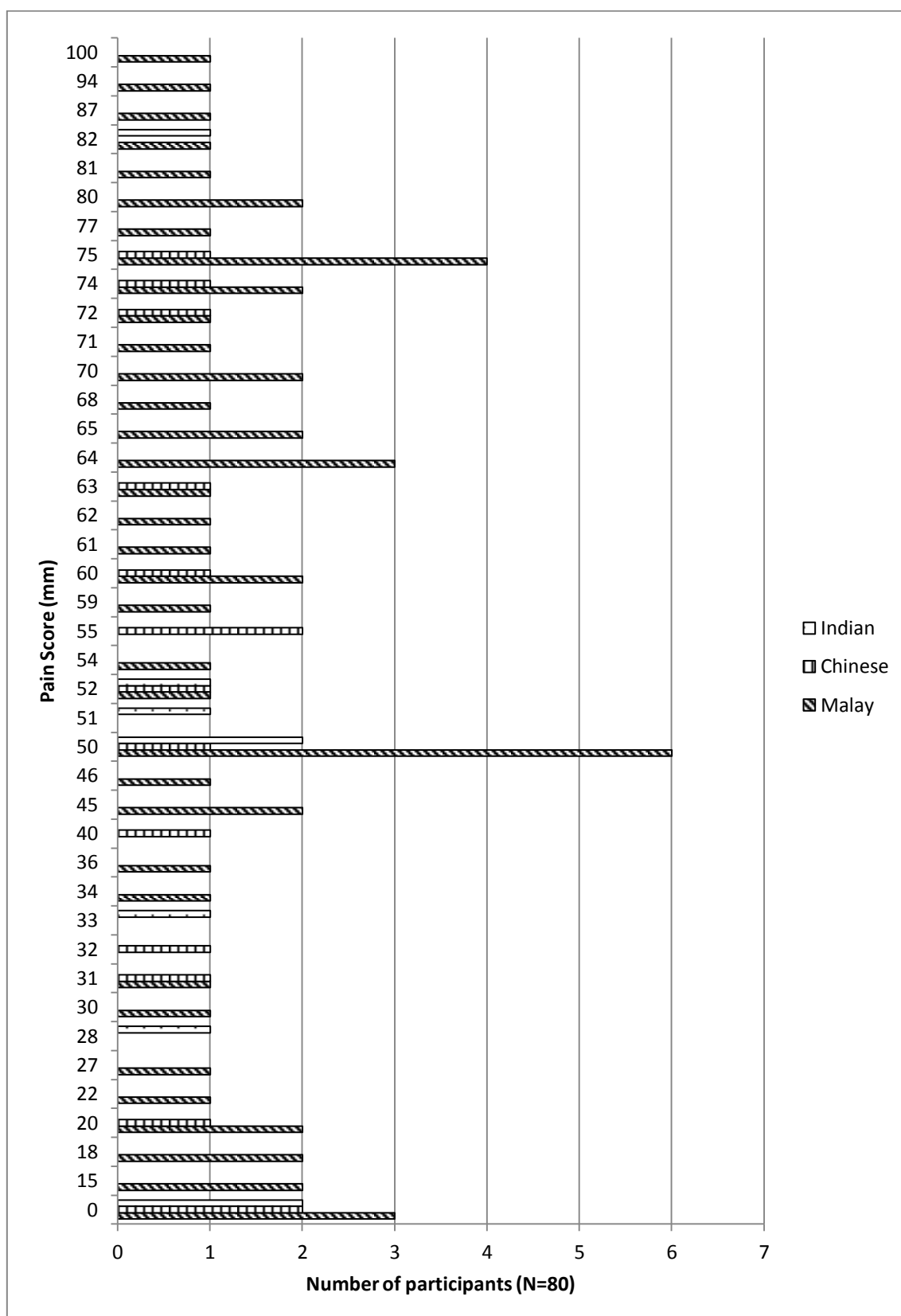
Witness's Name : Researcher's :
Name

Signature/ Date : Signature/ Date :
IC Number :

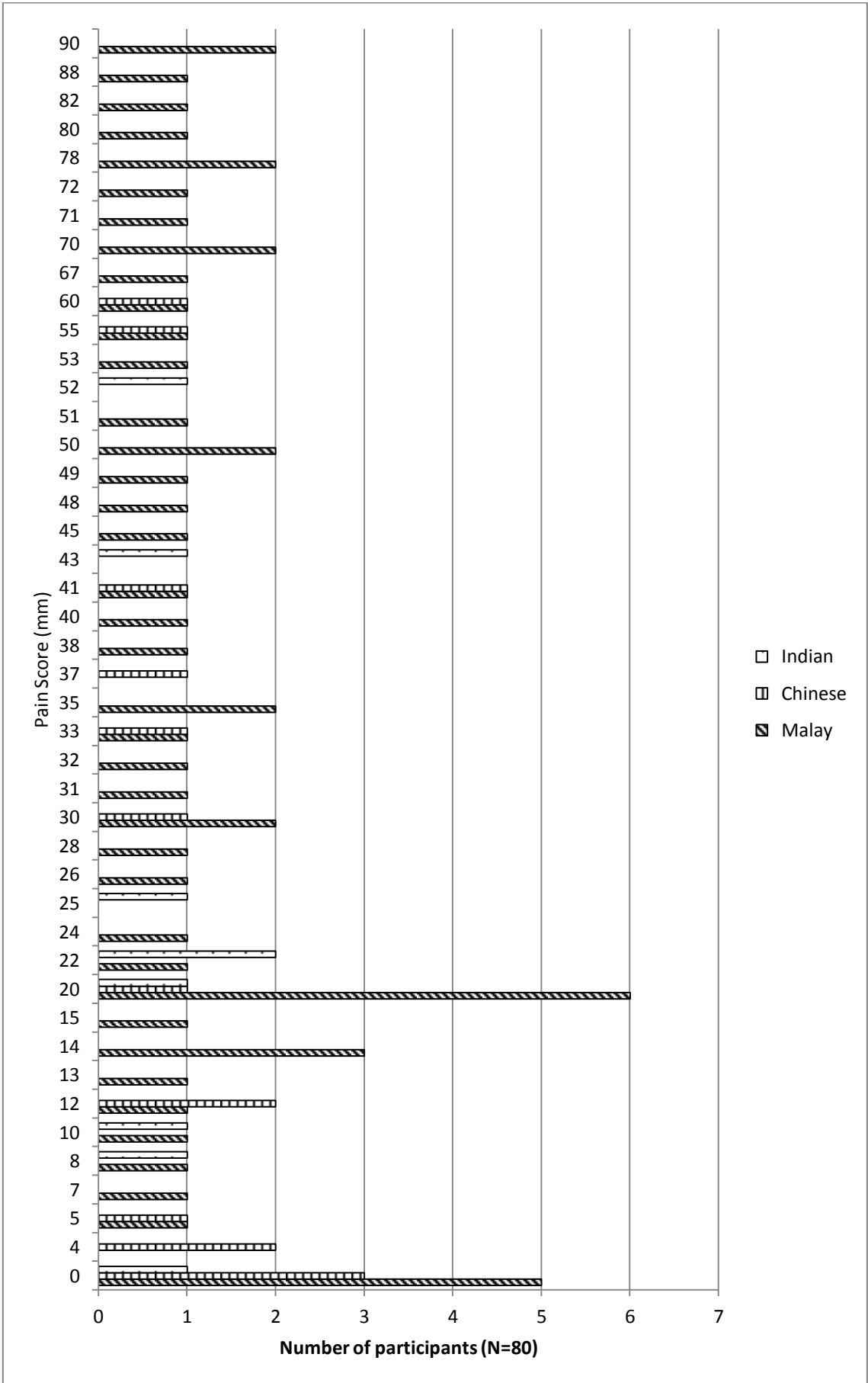
APPENDIX F

1. The worst pain scores across ethnicities participant *expected* to feel after surgery
2. Pain scores across ethnicities 4 hours after surgery
3. Pain scores across ethnicities 24 hours after surgery
4. Pain scores across ethnicities 48 hours after surgery

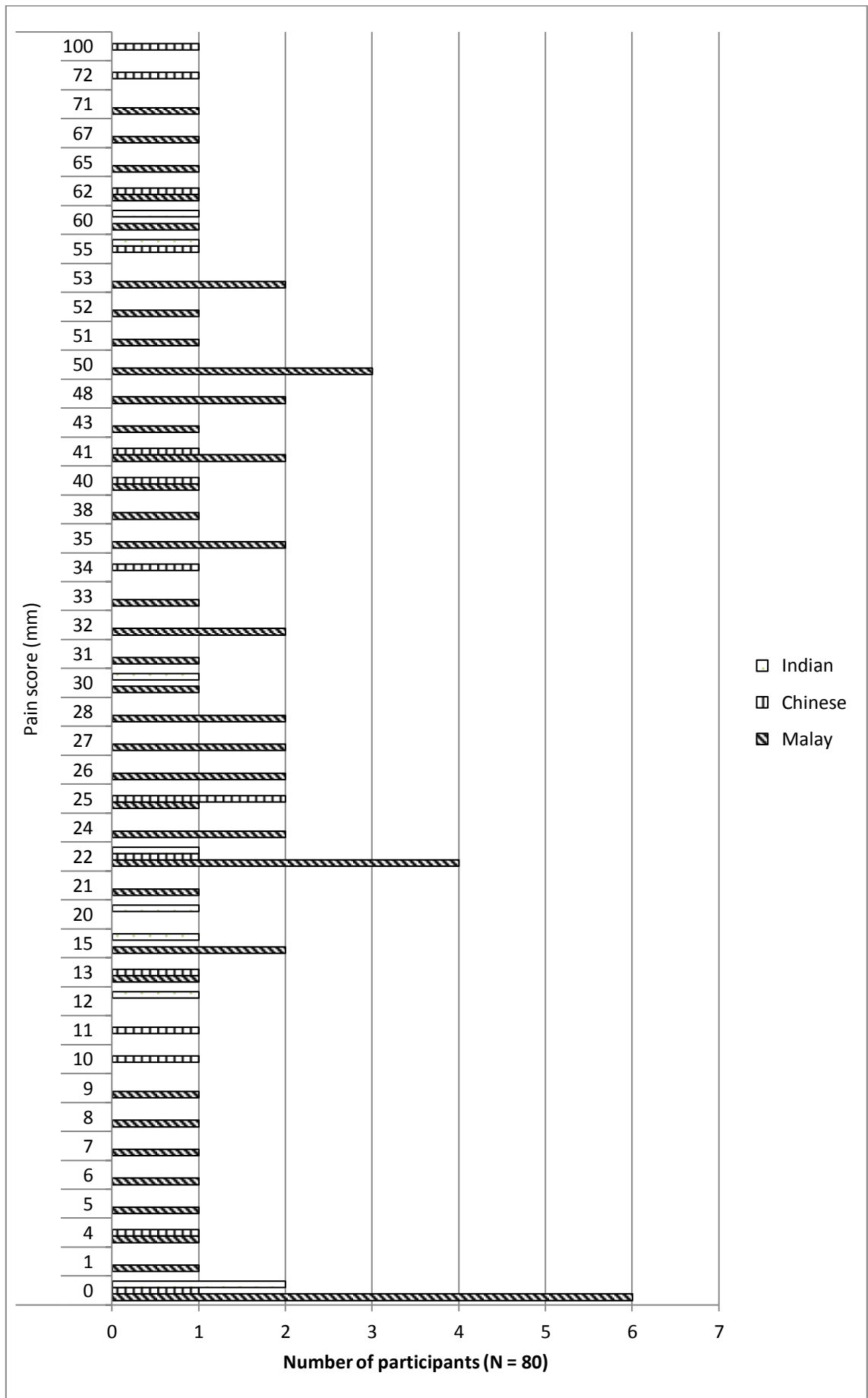
1. The Worst Pain Scores across Ethnicities Participant *Expected* to Feel after Surgery



2. Pain Scores across Ethnicities 4 hours after Surgery



3. Pain Scores across Ethnicities 24 hours after Surgery



4. Pain Scores across Ethnicities 48 hours after Surgery

