

**WOUND-RELATED PAIN DURING WOUND
CARE AMONG ORTHOPEDIC PATIENTS AT
HOSPITAL UNIVERSITI SAINS MALAYSIA**

By

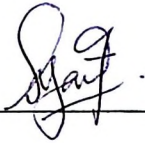
NURSYARIENA BINTI HANAFI

**Dissertation submitted in partial fulfillment of
the requirements for the degree of Bachelor of
Health Sciences (Nursing)**

June 2014

DECLARATION

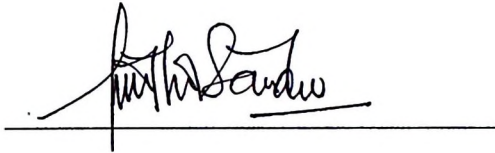
I certify that this thesis does not incorporate without acknowledgement of any material that submitted previously for a degree or diploma in any university, and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due references are made in the text.



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CERTIFICATE

This is to certify that the thesis entitled “Wound-related Pain During Wound Care Among Orthopedic Patients at Hospital Universiti Sains Malaysia” is the record of research work done by Nursyariena Binti Hanafi (108658) during period December 2013 until May 2014 under my supervision. This thesis submitted in partial fulfillment for the degree of Bachelor of Health Sciences (Nursing). Every research work and collection of data belongs to Universiti Sains Malaysia.

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TABLE OF CONTENTS

	Page
DECLARATION.....	i
CERTIFICATE.....	ii
ACKNOWLEDGEMENT.....	iii
TABLE OF CONTENTS.....	iv
LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
ABSTRACT.....	viii
CHAPTER 1: INTRODUCTION	
1.1 Background of the Study.....	1
1.2 Problem statements.....	2
1.3 Research Objectives.....	4
1.3.1 General Objectives.....	4
1.3.2 Specific Objectives.....	4
1.4 Research Questions.....	4
1.5 Research Hypothesis.....	5
1.6 Definition of Terms.....	5
1.7 Significance of the Study.....	6
CHAPTER 2: LITERATURE REVIEW	
2.1 Introduction.....	7
2.2 Surgical wound.....	7
2.3 Physiology of pain.....	8
2.4 Assessment of wound-related pain.....	9
2.5 Types of assessment tools.....	10
2.6 Types of dressing changes.....	11
2.7 Management of pain during dressing changes.....	12
2.8 Conceptual/ Theoretical framework.....	13
CHAPTER 3: RESEARCH METHODOLOGY	
3.1 Research Design.....	16
3.2 Population and Setting.....	16
3.3 Sample.....	16
3.3.1 Sample Size.....	16
3.3.2 Sampling Method.....	16
3.3.3 Inclusion and Exclusion Criteria.....	17
3.4 Instrumentation.....	17
3.4.1 Instrument.....	17
3.4.2 Measurement of Variables.....	17
3.4.3 Translation of Instrument.....	18
3.4.4 Validity.....	18
3.4.5 Reliability.....	18
3.5 Ethical Considerations.....	18

TABLE OF CONTENTS (Continue)

	Page
3.6 Data collection Methods.....	18
3.6.1 Flow Chart of Data Collection.....	20
3.7 Data Analysis.....	19
CHAPTER 4: RESULTS	
4.1 Introduction.....	21
4.2 Characteristics of the orthopedic patients.....	21
4.3 Wound- related pain during wound dressing.....	21
4.4 The differences level of pain between upper extremities and lower extremities.....	27
4.5 The differences level of pain between males and females.....	27
CHAPTER 5 : DISCUSSIONS	28
5.1 Introduction.....	28
5.2 Wound- related pain during wound dressing.....	31
5.3 Level of pain during wound dressing among orthopedic patients...	32
5.4 Differences between location of wound and level of pain.....	33
5.5 Differences between gender and level of pain.....	
CHAPTER 6 : CONCLUSION AND RECOMMENDATIONS	34
6.1 Introduction.....	34
6.2 Conclusion.....	34
6.3 Strength and limitations of study.....	35
6.4 Recommendations.....	35
REFERENCES	37
APPENDICES	
Appendix 1: Research Information in English.....	43
Appendix 2: Research Information in Malay.....	45
Appendix 3: Consent Form in English.....	47
Appendix 4: Consent Form in Malay.....	48
Appendix 5: Assessment tools in English.....	49
Appendix 6: Assessment tools in Malay.....	53
Appendix 7: Ethical approval letter.....	57
Appendix 8: Approval letter to conduct study at Hospital USM.....	58

LIST OF TABLES

Tables	Page
Table 4.1 : Frequency and percentage of demographics data of the respondents (n= 60)	22
Table 4.2 : Frequency and percentage of patients experiencing discomfort related to their wound (n= 60)	22
Table 4.3 : Frequency and percentage of location of surgical wound (n=60)	22
Table 4.4 : Frequency and percentage of situations patients experiencing wound-related pain (=60)	23
Table 4.5 : Frequency and percentage of trigger of pain (n=60)	23
Table 4.6 : Frequency and percentage of descriptions of pain (n=60)	24
Table 4.7 : Mean, SD pain score during dressing (n=60)	24
Table 4.8 : Frequency and percentage pain relievers (n=60)	25
Table 4.9 : Frequency and percentage of medications prescription to pain-relieving (n=60)	26
Table 4.10 : Frequency and percentage dressing solutions used during dressing (n=60)	26
Table 4.11 : Frequency and percentage of activities affected related to wound pain (n=60)	27
Table 4.12 : Comparison of mean level of pain and location of wound	27
Table 4.13 : Comparison of mean level of pain between gender	27

LIST OF FIGURES

Figures	Page
Figure 2.1 : Pain assessment tools	12
Figure 2.2 : The Chronic Wound Pain Experience (CWPE) Model by Diana Krasner (1995)	14
Figure 2.3 : The conceptual framework to study wound-related pain during dressing change among orthopedic patients	15
Figure 3.1 : Flow chart of data collection	20

WOUND-RELATED PAIN DURING WOUND CARE AMONG ORTHOPEDIC PATIENTS AT HOSPITAL UNIVERSITI SAINS MALAYSIA

ABSTRACT

Management of pain at dressing changes still appears to be an issue that is poorly managed in the clinical practice, causing the patient considerable distress. The aim of this study is to determine the wound-related pain among postoperative orthopedics patients at Hospital Universiti Sains Malaysia (Hospital USM). This cross sectional study also examined the difference level of pain with gender and difference level of pain with location of wound. Sixty hospitalized patients in the three orthopedic wards at Hospital USM were recruited in this study using purposive sampling. Data were collected from January to March 2014 using assessment tools and analyzed using SPSS version 20.0 for frequency, percentage, mean, standard deviation and p-value. The orthopedic patients reported their level of pain during wound dressing as being moderate pain ($M = 4.6$, $SD = 1.15$). 23 (38.3%) patients reported pain during dressing change. The study found that there is no significant difference between level of pain and location of wound ($p = 0.08$). In addition, there is a significant different between level of pain and gender ($p = 0.001$). Thus, nurses should identify the wound-related pain during wound dressing among orthopedics patients to improve the management of pain as well as quality of nursing care in order to prevent further complications to the patients.

SAKIT BERKAITAN LUKA SEMASA PENJAGAAN LUKA DALAM KALANGAN PESAKIT ORTOPEDIK DI HOSPITAL UNIVERSITI SAINS MALAYSIA

ABSTRAK

Pengurusan kesakitan semasa pencucian luka masih kekal sebagai satu isu yang tidak diuruskan dengan baik dalam amalan klinikal, menyebabkan pesakit mengalami ketidakselesaan. Matlamat kajian ini adalah untuk menentukan sakit berkaitan luka dalam kalangan pesakit ortopedik pos operatif di Hospital Universiti Sains Malaysia (Hospital USM). Kajian ini turut menentukan perbezaan tahap kesakitan dengan jantina dan tahap perbezaan sakit dengan lokasi luka. Enam puluh pesakit yang dimasukkan ke hospital di tiga wad ortopedik di Hospital USM telah diambil dalam kajian ini menggunakan kaedah persampelan bertujuan. Data telah dikumpulkan dari Januari hingga Mac 2014 menggunakan alat-alat penilaian dan dianalisis dengan menggunakan perisian SPSS versi 20.0 untuk kekerapan, peratusan, min, sisihan piawai dan nilai p. Pesakit-pesakit ortopedik melaporkan tahap kesakitan semasa pencucian luka sebagai sakit sederhana ($M = 4.6$, $SP = 1.15$). 23 (38.3 %) pesakit melaporkan sakit semasapencucian luka dilakukan. Kajian mendapati bahawa tidak ada perbezaan yang signifikan antara tahap kesakitan dan lokasi luka ($p = 0.08$). Selain itu, terdapat perbezaan yang signifikan antara tahap kesakitan dan jantina ($p = 0.001$). Oleh itu, jururawat perlu mengenal pasti sakit berkaitan luka semasa pencucian luka dalam kalangan pesakit ortopedik untuk meningkatkan pengurusan sakit serta kualiti penjagaan kejururawatan untuk mengelakkan komplikasi selanjutnya kepada pesakit.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Pain is a common experience for people with chronic wounds (Reddy et al., 2003) and acts as an alarm to indicate that something is wrong and should be considered as an important patient assessment process such as temperature and blood pressure. Different types of pain can occur as a result of chronic wounds including chronic pain from the wound itself, pain caused by wound treatments, and anticipatory pain as a result of negative experiences (Dysvix et al., 2005). This types of pain may be long-term as well as further exacerbated by procedural pain. Recent research has focused on the impact of pain during wound care and emphasized the importance of minimising pain at dressing change (Bell and McCarthy, 2010; Upton and Solowiej, 2012).

Wound can cause considerable pain and discomforts to patients (Solowiej and Upton, 2010). Wound pain can be exacerbated by dressing changes and it is important to ensure that dressing changes are as pain free as possible. The assessment of pain should be carried out before, during and after dressing procedure and documented in the patient's notes (World Union of Wound Healing Societies (WUWHS), 2004). A study by Upton et. al (2012) demonstrated that patients with acute and chronic wounds experienced greater pain at dressing change than during a control period, which was associated with increased experiences of psychological stress. Therefore, it is important to acknowledge the pain consistently during wound care to ensure pain is prevented or minimised by effective assessment and management.

One source of pain includes surgical procedures and postsurgical pain that do not reduced is common. Inadequate pain management can result in decreased mobility, leading to negative clinical outcomes such as deep vein thrombosis, pulmonary embolism, coronary ischemia, pneumonia, poor wound healing, and delayed rehabilitation which can increase length of stay, readmissions, and patient dissatisfaction (Apfelbaum et al., 2003; Huang et al., 2001). In a study by Bardiau et. al (2003), pain relate in delayed of wound healing especially in surgical patients because of undertreatment of postsurgical pain. Despite all of the effects, unrelieved

postsurgical pain remains as an important clinical problem and may have serious complication for the recovery of surgical patients.

In a study by Department of Health of Bournemouth University (2006), they complemented a new wound care formulary which included a variety of aspects of wound management and related specialties. Particular priority was given by the group to include section on the assessment and management of wound pain. The process of treating pain is a constant challenge, as it involves the evaluation of the presence, type, intensity, location and possible causes, and the parameters of this assessment may change for each person (Laccetti & Kazanowski, 2005).

Furthermore, a consensus document by WUWHS (2004) has explored that strategies to minimize pain at wound dressing- related procedures is central to effective pain management. So, it is important that the health practitioner addressed any local factors that could cause wound pain as effective pain management depends on detailed and accurate assessment as well as documentation of the patient's pain experience. These could include infection, excessive dryness or excessive exudate, oedema, maceration or dermatological problems. In addition, treating the underlying cause of pain is necessary when attempting to manage chronic wound pain (Sibbald et al, 2006).

1.2 Problem Statement

Pain management at dressing changes still appears to be an issue that is poorly managed in the clinical practice, causing the patient considerable distress. Pain has often been identified as the most distressing symptom for patients living with long-term wounds (Price et al., 2008; Rajsekhar, 2011). In addition to pain resulting from the wound itself, wound pain can arise from continuous wound treatment as well as anticipatory pain which occurs in some patients as a consequence of negative experiences of care (Woo, 2008; Solowiej et al., 2010). Pain is often not assessed or may be assessed inadequately by the health practitioner and it has become significant issue for many patients.

Pain treatment is considered very important in patient care and the American Pain Society began to consider it the fifth vital sign, emphasizing its significance and looking to increase awareness among health professionals about the importance of its effective treatment (Smeltzer, Bare, Hinkle & Cheever, 2009). On the other hand, one

source of pain include surgical procedure which mainly experienced by orthopedics patients. The prevalence and severity of postoperative pain after orthopaedic procedures are higher than those after non-orthopaedic procedures which lead to difficulty in making adequate pain control (Chung, Ritchie & Su, 1997; Singh, Sperling, Buchbinder & McMaken, 2010). Unrelieved postsurgical pain need longer hospital length of stay, delayed ambulation, and long term functional impairment (Morrison et al., 2003).

In Turkey, pain assessment is a major problem in postoperative patients, because nurses have inadequate knowledge about the care of patients' pain, and pain control methods (Akbasx & Oztunc, 2008). Furthermore, Eti-Aslan (2006) determined that acute pain is prevalent in patients at a rate of 30%-97% during the postoperative period in Turkey. If nurses understand postoperative pain characteristics which included location, characteristics, duration, and severity in orthopedic patients, they can implement safe and effective postoperative pain management.

While everyone with an intact nervous system experiences physical pain, research has shown that the reported intensity and prevalence of pain arising from the musculoskeletal system appears to differ between males and females (LeResche, 2011; Ruau, Liu, Clark, Angst & Butte, 2011). A recent report from the United States also suggests that pain is under diagnosed and under treated in females (Pizzo & Clark, 2011)

In addition, although key documents on assessment and management of wound pain have been published, it had been argued that pain management remains a neglected area of clinical practice (WUWHS, 2004). Hofman (2006) proposed that health professionals often give low priority to pain management because of too concerned in treating the wound, lack of time and ignorance. This raises some serious issues about adequacy of pain assessment and effectiveness of pain relief strategies (King, 2003). Therefore, pain associated with dressing change is an important problem for patients, with pain reduction considered a high treatment priority (White, 2008).

The problem of wound-related pain is often underestimated because of failure to consistently assess for wound pain and difficulties in quantifying wound pain due to its multidimensional nature and the complex etiologies. When wound-related pain is identified, the healthcare giver then faces difficulties in choosing a management

regimen that emphasized all aspects living with a wound. So, to manage and assess wound pain, nurses must have a clear understanding of the causes of wound pain.

Recent reviews have suggested that pain whether from the wound or wound care can be perceived by patients as stressor (Solowiej et al, 2009; Soon and Acton, 2006; Walburn et al, 2009). Research has shown that pain can lead to psychological stress which has negative physiological and psychological consequences for wound patients. Wound-related pain may restrict many activities of daily living that are important to the patients especially orthopedic patients. They are often experienced pain-associated sleep problems which is often exacerbated at night because of muscle spasms, poor circulation or positional changes.

For local studies, there is not much research done regarding the wound related pain during wound dressing among orthopedics patients. It was hoped that this research would provided information regarding the wound related pain.

In this research, the chronic wound pain experience model by Krasner (1995) was integrated. Based on this theory, pain related to the wound should be handled as one of the main priorities in chronic wound management as well as addressing the cause. Management of pain in chronic wounds depends on proper assessment and documenting patient experiences of pain.

1.3 Research objectives:

1.3.1 General objectives:

To determine wound-related pain during wound dressing among orthopedic patients at Hospital USM.

1.3.2 Specific objectives:

- a) To determine wound-related pain during wound dressing among orthopedic patients at Hospital USM.
- b) To examine the difference between location of wound and level of pain among orthopedic patients at Hospital USM.
- c) To examine the difference between gender and level of pain among orthopedic patients at Hospital USM.

1.4 Research questions:

- 1) What is the wound-related pain during wound dressing among orthopedic patients at Hospital USM?

- 2) Is there any difference between location of wound and level of pain during wound dressing among orthopedic patients at Hospital USM?
- 3) Is there any difference between gender and level of pain during wound dressing among orthopedic patients at Hospital USM?

1.5 Research Hypothesis:

- a) Ho : There is no significant difference between location of wound and level of pain during wound dressing among orthopedic patients in Hospital USM
HA : There is a significant difference between location of wound and level of pain during wound dressing among orthopedic patients in Hospital USM
- b) Ho : There is no significant difference between gender and level of pain among orthopedic patients in Hospital USM
HA : There is a significant difference between gender and level of pain among orthopedic patients in Hospital USM

1.6 Definition of Conceptual Term

Wound-related pain

Pain is a subjective and common experience for people with wounds. Wound-related pain can be acute or chronic. Acute wound pain can be exacerbated whenever the wound is being handled or manipulated with nursing procedures such as dressing removal, wound cleansing, or debridement. On the other hands, chronic wound pain is background symptom that exists at rest and between wound-related procedures including dressing changes and turning. A sudden emergence of wound-related pain or an increase in existing pain is often linked to infection or bacterial damage, tissue trauma and other key factors that adversely affect wound healing.

In acute wound, the pain generally subsides with healing. However, the impact of the prolonged inflammatory response can cause the patient to have an increased sensitivity in the wound and surrounding tissue. Further painful or noxious stimuli due to repeated manipulation such as dressing changes make any sensory stimulus will register as pain.

Wound-related pain is a significant problem for patients with wounds, and studies have shown that wound-related pain has a significant impact on their quality of life (Franks and Moffat, 2001; Price et al., 2008). Wound-related pain affects the physical, psychological, and social well-being of the patient, with the effects of pain

limiting physical activities, social contact and having the potential to contribute to anxiety as well as depression. It is important to remember that increased wound pain may be an indicator of wound complications that need treatment.

1.7 Significance of the study

Minimising pain is one of the basic human right. It had being considered as the fifth vital signs after body temperature, pulse rate, blood pressure and respiration rate. Thus, it is not just a clinical issue but also an ethical situation involving all health care professionals. In this sense, pain management is a duty of all health professionals including nurses, doctors, surgeons, and others.

In order to provide effective pain management, the main assessment which is pain assessment should be done. However, not all health professionals perform the pain assessment before doing any procedure to the patient and patients's pain being neglected. This study was done to emphasize the importance of pain assessment among patients and the suitable management that can be done to different types of pain.

Moreover, the research about wound-related pain was done to establish a baseline to ensure effectiveness of treatment given to the patient in order to reduce the pain. Furthermore, this research may help the health professionals to provide appropriate treatment by documenting the pain patterns that the patients experienced and the cause of the wound-related pain as well as assist in developing treatment goal with other multidiscipline team to minimise pain in wound care.

Besides, this research allowed people other than healthcare professionals such as patients and relatives to know more about the importance and need of pain assessment during wound care. They also will get to know why pain assessment need to be done and how it being done. Other than health professionals, patients can also assess their own pain and report it to the nurses or doctors,so that they can treat the pain. Other than that, this research will also let people know the management of pain that can be done to treat and reduce the pain.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Pain is a frequent consequence of wounds and contributes to poor quality of life, reduced well-being, physical ability, and mortality. Frequent undertreatment of pain including assessment and management of the pain lead to slow and delay wound healing and consequent reductions in quality of life. Pain can be different with different location, different types of wound, age, as well as gender. Wound care procedure such as dressing removal, wound cleansing, debridement, and inappropriate dressing selection also can contribute to wound-related pain. Dressing changes can be painful, unpleasant and stressful to the patient especially if the patient has high sensitivity to pain.

2.2 Surgical wound

A surgical wound is a wound made by a cutting instrument. Surgical wounds are made in a sterile environment where many variables such as bacteria, size, location and the nature of the wound itself can be controlled. It is made for a variety of reasons by orthopedist or orthopedic surgeons. In any surgical procedure, a surgical wound or incision will be created in order to open the layers of tissue necessary to access the source of disease or injury and in some cases of disease or injury, surgery is required to treat or further investigate the condition. Orthopedic surgery is an operation performed by a medical specialist such as an orthopedist or orthopedic surgeon, who is trained to assess and treat problems that develop in the bones, joints, and ligaments of the human body. Orthopedic surgery usually attempts to correct problems that arise in the skeleton and its attachments, the ligaments and tendons. It may also include some problems of the nervous system, such as those that arise from injury of the spine. These problems can occur at birth, through injury, or as the result of aging.

In addition, orthopedic surgery is often cited as among the most painful of surgeries. The severe pain that has seen so frequently after orthopedic surgery is largely a result of the nature of the surgical procedure, which often involves

significant muscle and skeletal tissue repair or reconstruction (Pasero & McCaffery, 2007).

2.3 Physiology of pain

Pain is mostly described as either nociceptive or neuropathic pain (Johnson, 2008). Nociceptive pain is experienced as a result of body's response to injury and can also be caused during traumatic dressing removal (World Union of Wound Healing Societies [WUWHS], 2004). There are four basic processes involved in nociception (McCaffery and Pasero, 1999). These are transduction, transmission, perception, and modulation. Meanwhile, according to Hollinworth (2005), neuropathic pain occurs when nerve endings are damaged and continued to cause pain over long periods of time. It often described as burning, "pins and needles", shooting or lightning-pain like. It results from either injury to or malfunction of the central or peripheral nervous system. Since wounds consistently involved damage to nerves, some patients may experience altered sensations as a result of the changes in how the nerves respond. Even the lightest sensation, such as a change in temperature or air blowing on the wound, can produce an exaggerated response from the central nervous system, causing the individual excruciating pain.

WUWHS (2004) have outlined different types of pain in its document of "Minimising pain at wound dressing- related procedures" which include background pain, incident pain, procedural pain and operative pain. Background pain is felt at rest when no wound care procedure is being undertaken. The pain also can result from conditions such as osteoarthritis and cancers which are not wound related. Meanwhile, incident pain is movement related and occurred during day-to-day activities such as moving the patient, coughing or slippage of the dressing. On the other hand, procedural pain occurs as a result of the actual wound care procedure which includes dressing removal, wound cleansing and reapplication of the dressing principles (Principles of Best Practice, 2004). For operative pain, it occurs as a result of interventions such as sharp or surgical debridement which would normally be performed by a clinician with special skill.

In addition, surgical pain is an unpleasant sensation that results from a surgical procedure. The pain is caused by the damage done to tissue by the incision, the procedure itself, the closing of the wound and any force that is applied during the

procedure. It is also a complex response to tissue trauma during surgery that stimulates hypersensitivity of the central nervous system. Furthermore, post-surgical pain will increase the possibility of post-surgical complications, raises the cost of medical care, and interferes with recovery and normal activities of daily living.

2.4 Assessment of wound-related pain during dressing

The basic principles of pain assessment should be the same for all wound types because the goal is to minimize pain and create optimal conditions for wound healing. Pain scoring is a vital sign for wound management. If the pain is getting worse, it may indicate healing problems such as infection or the use of an appropriate treatment. An initial assessment should be carried out by experienced health practitioner. It included full pain history, incident, procedural, operative and background pain. This initial assessment provides knowledge of the wound as well as the patients's pain experience and placed it within a patient-centered environment.

Wound pain is complex and predominantly serves to protect from further trauma and to aid healing (Coulling, 2007). It is important to identify and document pain assessment. Pain intensity should be recorded in addition to how wound affects an individual's life, and factors that exacerbate pain or to contribute to tissue trauma. It is essential to identify what makes the dressing change more stressful for patients, if there is constant background pain which is caused by disease process, and what helps in reducing the pain patients may have experienced during previous dressing changes (Hollinworth, 2005).

Besides, pain is an important indicator of the wound status as the presence of unexpected pain or tenderness along with other sign and symptom may indicate infection of the wounds. A failure to adequately assess for wound pain can lead to considerable distress to the patient especially at wound dressing changes. Ongoing assessment of the level of pain before, during and after dressing procedure should be measured and documented to enable the healthcare providers to evaluate if the pain is decreasing or increasing. If it is increasing, new interventions will be planned to reduce the pain. Events related that increased or reduced pain should also be documented.

Frequent assessment of pain is particular importance in wound care. A review by King (2003) revealed that nurses consistently rated patients' experiences of pain

significantly lower than patients did themselves. In the first instance, it is important to consider feedback from patients including verbal or behavioural signs of pain. Simple observations of patients' behavior can often indicate important indicators of pain. As pain is subjective, patients' self-report pain is the most reliable indicator of pain. Changes in pain levels may indicate a need to reassess the choice and timing of pain management interventions. All pain assessments should be well documented to facilitate the continuity of patient care.

Gender is also one of the components of wound-related pain assessment. Gender refers to the "individual's own representation as man or woman, or the way in which the individual responds to social institutions based on the gender presentation". Consequently, understanding gender differences in relation to pain is important and critical for the management of patients. There are many factors that are involved in difference in pain response between males and females. The factors may be anatomical, neurological, physiological, hormonal aspects, psychological, and cultural aspects. From the social and cultural aspects, women were closely linked to the most sensitive side of mankind and for this reason, tragic events may lower their threshold of pain and increase their vulnerability.

Other than that, location of wound is also being considered as related to wound pain. Pain after orthopedic procedures of the lower extremity is frequently categorized as severe (Bonica, 1990).

2.5 Type of pain assessment tools

The pain assessment should be taken at each dressing change using validated pain assessment tool. Pain intensity can be documented using a wide variety of pain scales such as Verbal Rating Scale (VRS), Numerical Rating Scale (NRS) and Visual Analogue Scale (VAS). However, to select a specific pain scale, the patients' age, language, educational level, presence of other sensory impairments, developmental stage and cognitive status must be assessed first.

The Faces scale is also one of the pain assessment tools. It used cartoon faces ranging from a smiling face for "no pain" to a tearful face for "worst pain". Meanwhile, the Visual Analog Scale (VAS) is commonly drawn as a 10cm line indicating a continuum between two extremes, for example "no pain" to "worst pain".

Patients are asked to point a position on the line that best represents their level of pain. This score is then measured and recorded.

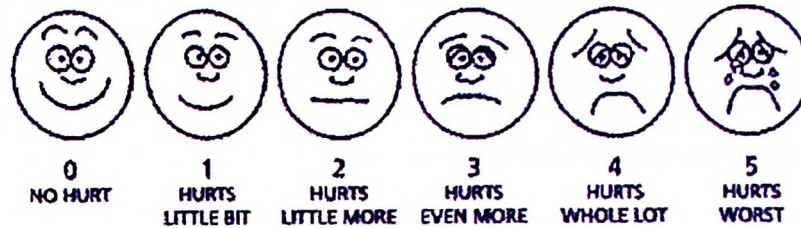
The Numerical Pain Scale (NPS) and Verbal Rating Scale (VRS) usually used for older patients for their ease of use and directedness. NPS presents the patients with a range numbers of zero to ten to indicate the range from no pain to worst possible pain. The patient is asked to choose a number on the scale that best places his or her current pain on that scale. In addition, VRS is one of the simplest scales used and usually consists of no more than four words such as “none”, “mild”, “moderate”, and “severe”.

Other than that, Short McGill Pain Questionnaire is a popular choice to assess the quality and characteristics of the pain. It consists of 15 descriptors (11 sensory; 4 affective) which are rated on an intensity scale as 0 = none, 1 = mild, 2 = moderate or 3 = severe. Another pain assessment tools is Behavioural Rating Scale. The behavioural pain assessment scale is designed for use with non-verbal patients unable to provide self-reports of pain. Figure 2.1 showed example of pain assessment tools.

2.6 Types of dressing change

It is important that dressing that has being chosen promote moist wound healing (WUWHS, 2004). By choosing a dressing that maintains a wound healing environment and that does not dry out, the friction at the wound surface will be reduced and indirectly minimised wound trauma and pain during removal. Selecting the most appropriate dressing material for each wound is important to ensure comfort, reduce pain and promote healing. Research by Upton and Solowiej (2012) has suggested that specific dressing types may contribute to the experience of pain which has significant implications for clinical practice.

Wong-Baker FACES Pain Rating Scale



0-10 Numeric Pain Intensity Scale

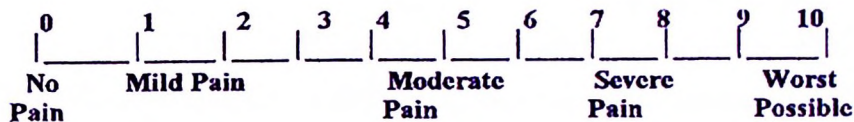


Figure 2.1: Pain assessment tools: Wong-Baker FACES Rating Scale (Wong, Hackenberry-Eaton, Wilson, Winkelstein, & Schwartz, 2001), 0-10 Numeric Pain rating scale (McCaffer & Pasero, 1999).

2.7 Management of pain during dressing changes

Pain management aims to minimise patient discomfort, facilitate early mobilisation and functional recovery, as well as prevent acute pain developing into chronic pain. Management of wound-related pain can be challenges for the health practitioners because different wounds have different etiology and healing process. It is therefore important that each patient has his or her own individual care plan. Proper pain treatment allows early mobilisation, preventing complications from associated immobility, and permits faster and earlier rehabilitation.

Management of pain during wound dressing can be either pharmacologic or non-pharmacologic. Pharmacologic treatment involved administration of drug to reduce the pain. Analgesics and anti-inflammatory drugs are the most common interventions used for relieving pain. Systemic or topical analgesics or local anaesthetics also commonly used for reducing pain during dressing changes.

The World Health Organization (WHO) (2005) has developed a three-step ladder for managing cancer pain and chronic pain, which claimed to be effective in about 90% patients. It used drugs of increasing potency alone or in combination, depends on the severity of the pain until it is controlled. Non-opioids drugs such as aspirin and paracetamol are used for mild pain, mild opioids such as codeine for moderate pain, and strong opioids such as morphine, diamorphine or fentanyl for severe pain.

Non-pharmacologic treatment of pain during wound dressing involves communication and relaxation therapies. Relaxation therapies mainly attempt to reduce patient's anxiety and fear. Other than that, improved communication enhances the patient's sense of control and encourages the active coping strategies towards the pain. Also, patient should be allowed to participate in decisions regarding pain management in order to help the patient to gain a sense of control over their pain. Other than that, the timing of the procedure must be considered. Patient should be allowed to have choice as to when the dressing will take place.

2.8 Theoretical/ Conceptual Framework

The theoretical framework for this research is based on The Chronic Wound Pain Experience (CWPE) Model by Diana Krasner (1995). It was the first model for chronic wound pain assessment and treatment. This model highlights the difference between background pain associated with the underlying etiology of the wound and the pain caused by treatment such as dressing pain. It was divided into three special characteristics which are noncyclic acute wound pain, cyclic acute wound pain and chronic wound pain. The model is shown in Figure 2.2.

The framework for this research shows the assessment of wound-related pain including the location of wound and gender. The difference level of pain between gender and location of wound will be measured. Also, the management for the wound-related pain will be included.

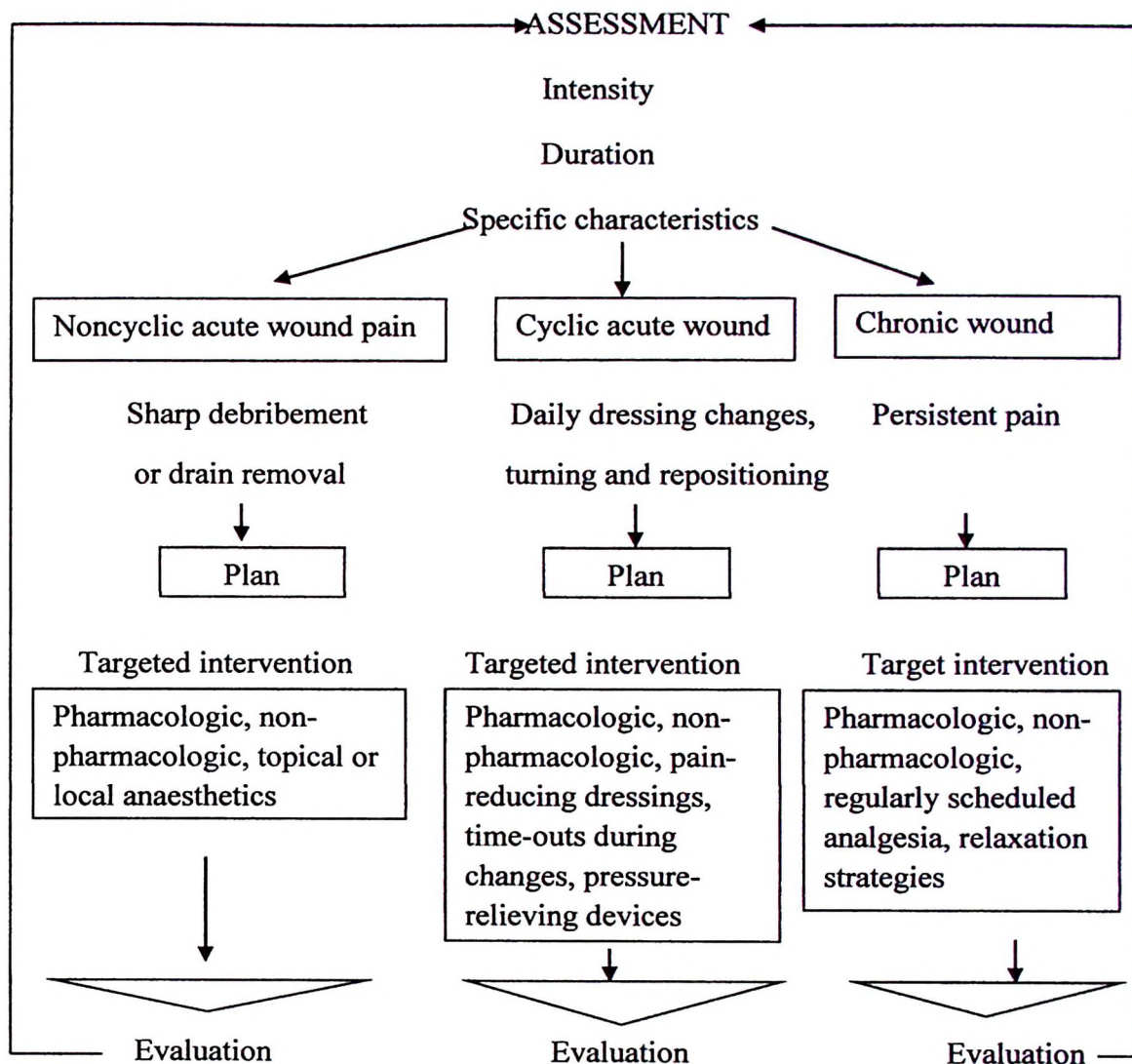


Figure 2.2: The Chronic Wound Pain Experience (CWPE) Model by Diana Krasner (1995)

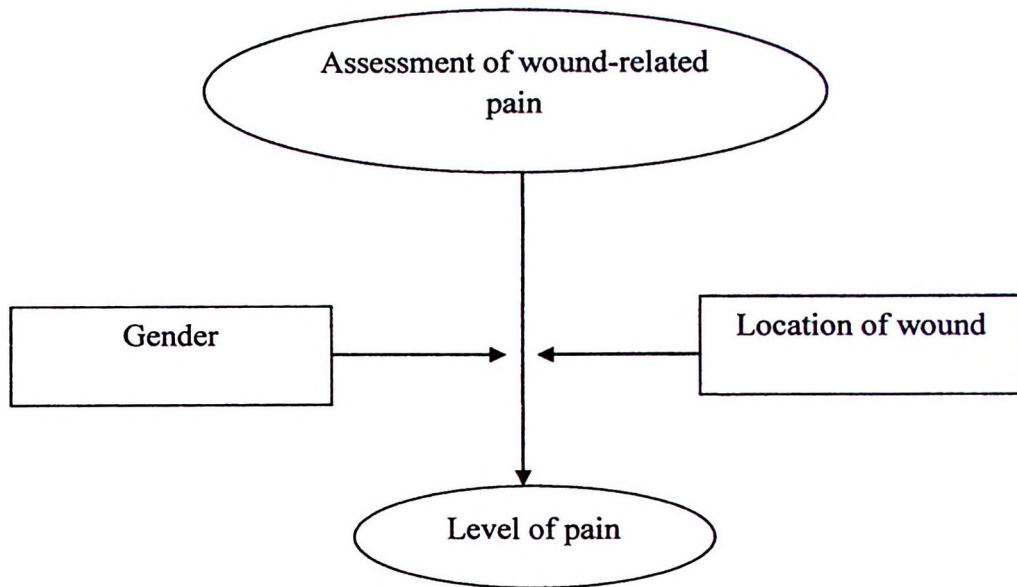


Figure 2.3: The conceptual framework to study the wound-related pain during wound dressing among orthopedic patients at Hospital USM adopted from the chronic wound pain experience by Krasner (1995).

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research design

This research was conducted by using quantitative, descriptive and cross-sectional design to determine the wound-related pain during wound dressing among orthopedic patients in Hospital USM. The study was conducted from January 2014 to February 2014.

3.2 Population and Setting

The subjects for this research study were patients in three orthopedic wards which are 2 Zamrud, 4 Selatan, and 4 Utara in Hospital USM.

3.3 Sample

3.3.1 Sample size

Sample size was estimated according to RAOSOFT Sampling Method 2004. The formula used by RAOSOFT Sampling Method is as below:

$$x = Z(c/100)^2 r(100-r)$$

$$n = Nx / ((N-1)E^2 + x)$$

$$E = \text{Sqrt}[(N-n)x / n(N-1)]$$

where, N = population size , n = sample size, r = fraction of responses that interested in, and $Z(c/100)$ = critical value for the confidence level c.

The mean total population of orthopedic patients underwent surgery at Hospital Universiti Sains Malaysia from January to September 2013 are 75. By using RAOSOFT Sample Size Calculator, the total samples of patients in this study were 63. With the 10% drop-out, the total sample size was $(63 + 6) = 69$.

3.3.2 Sampling Method

Non- probability purposive sampling was used.

3.3.3 Inclusion and Exclusion criteria

The inclusion criteria are as follows:

- i. Patient from selected orthopedic ward presented with surgical wound
- ii. Dressing on the day of wound inspection
- iii. Age above 18 years old
- iv. Patients who agreed to participate in research and signed the informed consent

The exclusion criteria are as follows:

- i. Patients with other than surgical wound
- ii. Patients with cognitive impairment
- iii. Patients with Diabetes Mellitus

3.4 Instrumentation

3.4.1 Instrument

The guided assessment tools were being used to gather information on determining wound-related pain during dressing among orthopedics patients in Hospital USM. The assessment tools consists of two parts: Part 1 comprised of demographic data and Part 2 comprised of wound-related pain assessment.

Part 1 : Demographic data

This part consists of items that identify patients' age, gender, material used at wound and type of anaesthesia.

Part 2 : Wound-related pain assessment

This part consists of questions that described the wound-related pain. This assessment tools was adopted from International Pain Advisory Panel, Hollinworth (2005). This tool consist of eleven questions that covered all components of wound-related pain such as location, dressing-related activities that make the pain worse or reduced, description of the pain, as well as pain score before, during and after wound dressing.

3.4.2 Measurement of Variables

The assessment tools comprised of ten categorical measurements and one numerical measurement. The categorical measurements were consist of "yes" and "no" answer as well as selecting one or more answer related to them. The numerical measurement measured the pain level which was evaluated using Numeric Pain Rating Scale. The scale presented the patients with a range numbers of zero to ten to

indicate the range from no pain to worse possible pain. 0 will indicate no pain, 1 to 3 indicate mild pain, 4 to 5 indicate moderate pain and 6 to ten indicate severe pain.

3.4.3 Translation of instrument

The original instruments were developed in the English language. For this study, the English version was being translated into the Malay language using forward backward translation and checked by one of English teacher and one of Malay teacher at Pusat Bahasa, USM.

3.4.4 Validity

The assessment tools were checked and validated by three nursing lecturers.

3.4.5 Reliability

For determining the reliability of the instrument, the researcher had run pilot study. In this pilot study, 10% of the total sample which were 7 patients. During the pilot studies, there was no complaint from the patients about the assessment tools. Moreover, the assessment tools had been inspired by the World Union of Wound Healing Societies (2004).

3.5 Ethical considerations

1. Ethical approval was obtained from the Research Ethics Committee (Human) of USM and Director of Hospital USM.
2. All respondents were provided with the essential information for informed consent and asked to sign a consent form. In addition, explanation about the purposes of the study and how they were involved were also detailed by the researcher. They were informed that they have a right to stop or discontinue in participating for any reason. The researcher informed the participant about the researcher identity sincerely prior to permission from them to participate in this research. The participants were informed that their identity were confidential throughout the study.

3.6 Data Collection Methods

1. After ethical approval was obtained from the Research Ethics Committee (Human) of USM and got permission from the Director of

Hospital USM, the researcher then approached the participants after ruling out the inclusion criteria.

2. If participants were willing to participate, they were given a written informed consent to be signed. Following, the study subjects were explained about the process of data collection.
3. Nurses or doctors who were going to do the wound dressing towards selected patients were being approached and informed about the data collection.
4. The data were completed by the researcher during wound dressing of the patient.
5. Data collection methods were approximately two months. Figure 3.1 illustrates the data collection process of this study.

3.7 Data analysis

The data was processed by using the Statistical Package for the Social Sciences (SPSS) version 20. The analysis were as follows:

Demographic data

Descriptive statistics was used for presentation of demographic data of the patients, which comprise of mean, standard deviation, frequency, and percentage.

Wound-related pain during wound dressing among orthopedic patients at Hospital USM.

Both the categorical and numerical data were presented with frequency and percentage.

The difference between wound location and level of pain during wound dressing among orthopedic patients at Hospital USM.

Independent T test was used to analyze the significance difference between wound location and level of pain during wound dressing. From the test, it showed mean level of pain from different location of wound. From the result also, t value was calculated to determine the significance difference between location of wound and level of pain. If t value is less than 0.05, than the result is significance.

The difference between gender and level of pain during wound dressing among orthopedic patients at Hospital USM.

Independent T test was used to analyze the significance difference between gender and level of pain during wound dressing. From the test, it showed mean level of pain for different gender. From the result also, t value was calculated to determine the significance difference between gender and level of pain. If t value is less than 0.05, than the result is significant.

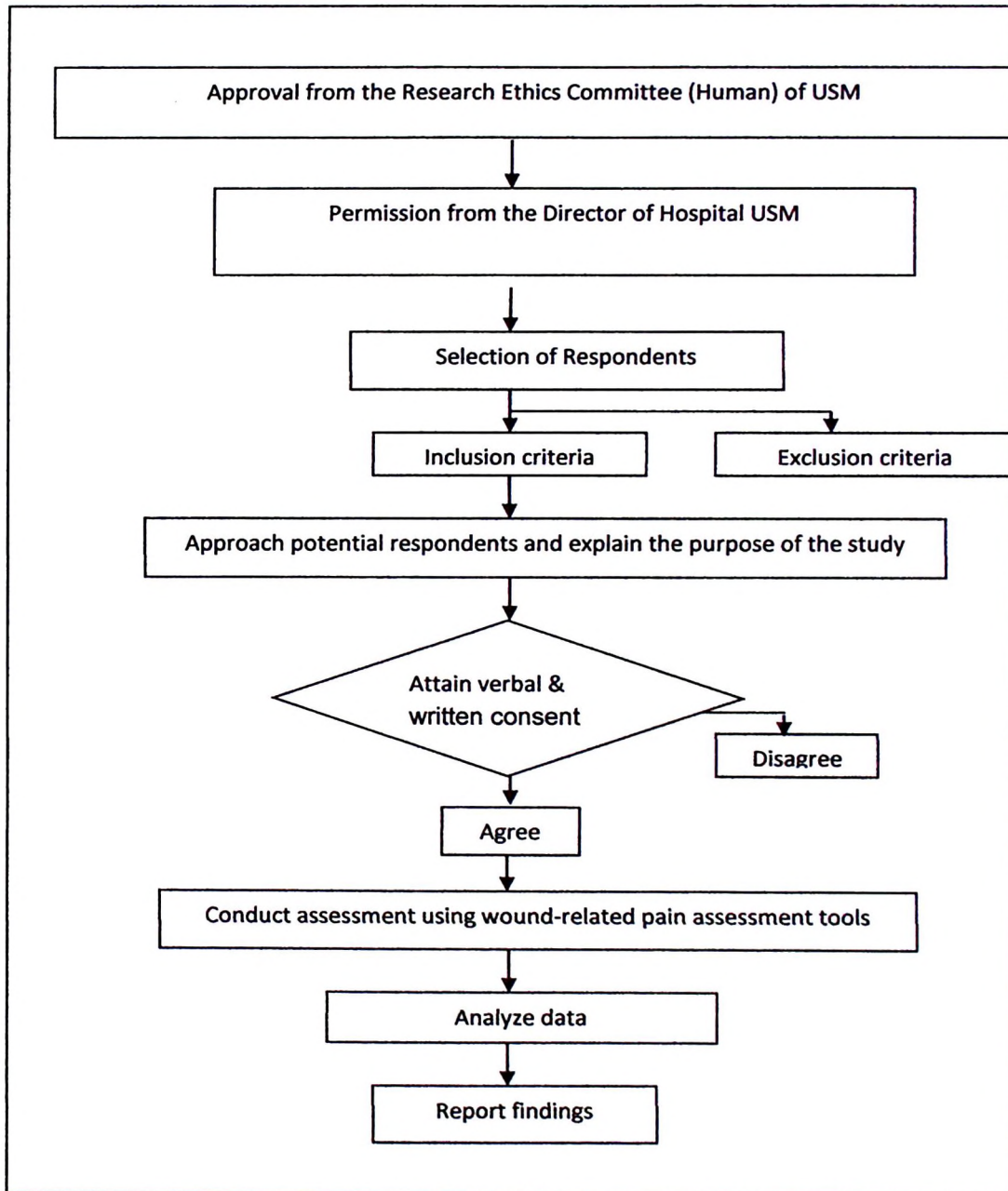


Figure 3.1: Flow chart of data collection

CHAPTER 4

RESULTS

4.1 Introduction

This chapter presents the findings of the study. The results of the study were based on the data gathered from 60 orthopaedics' patients. The findings of the study were presented as follows: patients' characteristic, wound related pain during dressing, the different level of pain between male and female, and the different level of pain between upper extremities and lower extremities.

4.2 Characteristics of the orthopedics' patient

Table 4.1 shows the demographic characteristic of the orthopedics' patients. The mean age of the orthopedics' patient were 36.12 years old and the range were from 18 - 69 years old. Forty (66.7%) of them were males while 20 (33.3%) of them were females.

Concerning to health related characteristic, forty five (75%) of the patients' surgical wound were being sutured, 5 (8.3%) of them were closed using staples and 10 (16.7%) of them were covered with either melolin or gauze.

All of the orthopedics' patients underwent surgery were either given general anaesthesia or spinal anaesthesia.

4.3 Wound-related pain during wound dressing

Majority of the orthopedics' patients 50 (83.3%) stated that they experienced discomfort related to their surgical wound while the 10 (16.7%) were felt comfortable. Table 4.2 illustrates the results.

Table 4.3 shows 40 (66.7%) of the respondents had the surgical wound at the lower extremities while 20 (33.3%) of them were at the upper extremities.

Table 4.1: Frequency and percentage of demographics data of the orthopedics' patient (n= 60)

Demographics Characteristic	Mean (SD) pain score	Frequency (n)	Percentage (%)
Age (<i>min – max</i> = 18 – 69)	36.12 (16.52)		
Sex			
Male		40	66.7
Female		20	33.3
Material used at the wound			
Suture		45	75.0
Staple		5	8.3
Other (melolin, bactigras and gauze)		10	16.7
Anaesthesia			
General anaesthesia		35	58.3
Spinal anaesthesia		25	42.7

Table 4.2: Frequency and percentage of patients experiencing discomfort related to their surgical wound (n=60)

Discomfort related to surgical wound	Frequency (n)	Percentage (%)
Yes	50	83.3
No	10	16.7

Table 4.3: Frequency and percentage of location of the surgical wound (n=60)

Location of the surgical wound	Frequency (n)	Percentage (%)
Upper extremities	20	33.3
Lower extremities	40	66.7

The results revealed that 23 (38.3%) of the orthopedics' patients had experienced pain during dressing change. Meanwhile, 15 (25%) orthopedics' patients had experienced pain at rest, during day-to-day activities as well as during dressing change. In addition, 12 (20.0%) of orthopedics' patients reported pain at rest and during dressing change as their wound-related pain as shown in Table 4.4.

Table 4.4: Frequency and percentage of situation patients' experienced wound-related pain (n=60)

Situation patients' experienced pain related to wound	Frequency (n)	Percentage (%)
Pain at rest	1	1.7
Pain during day-to-day activities	1	1.7
Pain during dressing change	23	38.3
Pain during wound debridement	0	0
Pain after dressing change	0	0
Pain at rest and during dressing change	12	20.0
Pain during day-to-day activities and dressing change	2	3.3
Pain at rest, pain during day-to-day activities and pain during dressing change	15	25.0
Pain at rest, pain during dressing change and pain after dressing change	6	10.0

According to the results in Table 4.5, 28 (46.7%) of the orthopedics' patients stated that the most exaggerated factors that make the pain became worse were during cleansing touch and followed by removing dressing and cleansing touch 24 (40.0%).

Table 4.5: Frequency and percentage of trigger of pain (n=60)

Trigger of pain	Frequency (n)	Percentage (%)
Removing dressing	4	6.7
Applying dressing	0	0
Cleansing touch	28	46.7
Removing dressing and cleansing touch	24	40.0
Removing dressing, applying dressing and cleansing touch	4	6.7

Furthermore, the orthopedics' patients described the appropriate term for their pain were throbbing involved 20 (33.3%) patients, stinging involved 12 (20.0%) patients, stinging and throbbing involved 11 (18.3%) patients, throbbing and shooting involved 7 (11.7%) patients, as shown in Table 4.6.

Table 4.6: Frequency and percentage of description of pain (n=60)

Description of pain	Frequency (n)	Percentage (%)
Gnawing	1	1.7
Burning	0	0
Stabbing	0	0
Aching	0	0
Stinging	12	20.0
Tingling	0	0
Throbbing	20	33.3
Shooting	0	0
Sharp	0	0
Gnawing, stinging and throbbing	2	3.3
Stabbing and stinging	1	1.7
Stabbing, throbbing and shooting	3	5.0
Stinging and throbbing	11	18.3
Throbbing and shooting	7	11.7
Stinging and shooting	3	5.0

Overall, orthopedics' patients mean pain score before dressing change were at the mild level of pain ($m = 2.85$, $SD = 1.57$), during dressing change were at the moderate level of pain ($m = 4.60$, $SD = 1.15$), and after dressing change were at the mild level of pain ($m = 2.88$, $SD = 1.57$) as shown in Table 4.7.

Table 4.8, shows adopted methods to reduce pain during wound dressing. Orthopedics patients who had to take pain-relieving medication before the wound dressing were 46 (76.7%) patients and followed by 7 (11.7%) patients needed brief rests and pain-relieving medication.

Table 4.7: Mean, SD pain score during dressing change of the orthopedics' patient (n=60)

Pain score of dressing change	Mean (SD) pain score	Frequency (n)	Percentage (%)
Before	2.85 (1.57)		
No pain		1	1.67
Mild pain		42	70.0
Moderate pain		15	25.0
Severe pain		2	3.33