CHAPTER-I
INTRODUCTION

All human beings seek a sense of wellbeing and comfort instinctively. There are many factors which cause threat to this comfort; it may include a variety of physical factors such as pain and psychological factors like anxiety. Experience of discomfort for a period of time, hampers a person’s self-care and role obligations, which in turn cause impairment in the quality of life From the beginning of time, mankind has experienced pain, which causes personal hardship. It is also the main phenomenon countered by hospitalized patients in general and surgical settings in particular, and it is the most common reason for physician consultation in the United States (Turk and Dworkin, 2004). It is a major symptom in many medical and surgical conditions which can significantly interfere with a person’s quality of life.

Pain is an unpleasant sensory and emotional experience associated with acute and potential tissue damage, or described in terms of such damage (Bonica, 1990). Surgical intervention is one of the major sources of pain and anxiety with which many people cannot cope up. Worldwide, inadequate management of pain is the source of major human and economic costs for patients, their families and society (Brenna, Carr and Cousins 2007).

Anxiety is the reaction to the threat of a serious disease or to a physical injury. Fear and unpleasant emotional reactions occur with the prospect of suffering an attack to one’s own personal integrity, even more if the subject feels
the potential injury is imminent, destructive and excessive with respect to the capacities to fight it effectively and adequately.

Postoperative pain is very common and develops naturally as a warning symptom. After surgery, its development can be predicted and should be prevented and treated (Power, 2005). Despite the pain medications and anesthetics techniques available, the prevalence of postoperative pain is still high. The prevalence of acute postoperative pain is 80% (Apfelbaum, Chen, and Mehta, 2003). Another study reported that patients after extremity surgery, abdominal surgery, and spinal surgery expressed moderate to severe pain. Among them, 41% expressed moderate or severe pain on day 0, 30% on day 1 and 19%, 16% and 14% on days 2, 3, and 4, respectively. The prevalence of moderate to severe pain in the abdominal surgery group was high (30-55%) on postoperative days 0-1 (Sommer, de-Rijke, Van-Kleef, Kessel and Peters, 2008). Similarly, Laporte (1999) reported that the percentage of postoperative pain experienced by patients after abdominal surgery varied from 22% to 67% and was severe to unbearable pain. Also according to the Institute of Medicine (IMO, 2011) approximately 100 million Americans suffer from chronic pain at an estimated annual cost of approximately 600 billion dollars. Preoperative pain and poorly controlled postoperative pain have been in high association with development of chronic postsurgical pain. The cause of unrelieved pain can result in longer hospital stays, increased expenditure of re-hospitalization, increased outpatient visits, and decreased ability to function fully leading to lost income and insurance coverage. The total incremental cost of health care due to pain range between $261 to $300
billion and $297 to $336 billion due to lost productivity based on days of work missed hours of work lost, and lower wages.

The average rate of major surgery per year in the population is 295 million and global volume of major surgery in 2004 was between 187.2 million and 281.2 million cases per year (Thomas et al., 2008). One billion open cholecystectomy s are performed every year in the US and the prevalence of pain after surgery is 27%. The prevalence of chronic postsurgical pain two years after cholecystectomy is 54% (Corell et al., 2013) and after three years is 23% (Gillon and Fagniez, 1999). Approximately 41% of abdominal surgery was performed every year (Sommer et al., 2008) and 10 to 15% of them have reported acute postoperative pain (Condonre 2001), 5 to 12% of the patients had reported severe postoperative pain after inguinal surgery and 75/1000 have reported chronic pain of the leg or groin lasting at least three months. The rate of the pain was 60 of 1000 for laparoscopy group and 90 of 1000 for open repair. 74 out of 1000 of these patients reported chronic nerve pain after laparoscopic procedure than for the open procedure (107/1000) {Schwab et.al(2006); Schmedt, Schmedt, Sauerland and Bittner (2005)}. Pain was experienced even after one year and 23% of patients experienced pain even after 3 years (Gillon and Fagniez 1999). Social activity was interrupted after three years of inguinal surgery (Bay-Nielsen et al., 2004). Preoperative pain and poorly controlled postoperative pain have been shown to be associated with the development of persistent postoperative pain and postoperative pain is associated with development of chronic postsurgical pain (IASP 2011; Jenson 2003; Wildguard, Rava and Kehlet 2009; Reuben and Yalavarthy 2008; Vickers 2007; Visser 2006; Macrac 2001) and
sensory abnormality. {Petress et.al,(2007) and Haroutiunian et al.,(2013)}. Persistent postsurgical pain is very high among younger individuals than elderly people {Kalliomaki et.al.,2008). Studies of Katz et al.,(2012) and Polesbuke et al. ( 2009)) ; Peterset et al.(2009), Hanley et.al. (2008); Gottschalk (2004) reported that the high use of analgesics during first seven days of postoperative period can produce chronic postoperative pain. Condon (2001) found in his study that the prevalence of chronic postoperative pain after inguinal hernia repair was 63%. The prevalence of chronic postsurgical pain two years after open cholecystectomy was 54% (Corell et al., 2013) and after three years was 23% (Gillion and Fagniez, 1999). According to CDC report (1996) 50% of the patients got discharged from the hospital with mild to moderate level of pain and Beauregard et al.(1998) reported that 10% of the postsurgical patients continue to use analgesics.

Unrelieved pain has significant functional, cognitive, emotional and social consequences. Function is impaired due to decreased activity and ambulation leading to reconditioning of gait disturbance. It is commonly understood that patients subjected to surgery commonly experience certain level of anxiety. Peri-operative anxiety is influenced by the patient’s apprehension about his or her general health, insecurity regarding the future, type of surgery and anaesthesia to be performed, postoperative discomfort and pain, incapacitation, loss of independence, and fear of death. Moderate to intense pain and high PRI were risk factors for high postoperative anxiety. Although the relation between higher levels of postoperative pain and increased anxiety has been described in numerous studies. Caumo, Broenstrub and Fialho (2001) yet it is mentioned that postoperative anxiety causes pain, because anxious patients have been shown to
have a lower pain threshold. The odds ratio for postoperative state anxiety in patients with high pre-operative state-anxiety was 2.65. (Caumo et al., 2001) and Patients who are more anxious in the pre-operative period showed an estimated 2.6 times higher risk of reporting a high level of anxiety in the postoperative period. This result is in agreement with previous research, in which high levels of pre-operative anxiety were associated with higher pain levels disturbances. Sleep is crucial for a sense of wellbeing. Pain can lead to sleep deprivation, which can decrease pain thresholds, limit the amount of daytime energy and increase the incidence and severity of depression and mood disturbances (Jakobson et al., 2003).

Pain can affect the patient’s physiological, psychological, social, mental functions and decrease the quality of life. The physiological effect is related to impaired respiration, disturbances in sleep and appetite and decreased mobility (Chu and Lui, 2003). The psychological effect is associated with emotional responses, such as anger, fear, anxiety, sadness or depression, which can be conceptualized as pain distress (Smeltzer & Bare, 2004). Anxiety is an individual experience and it is a concept that is difficult to describe with words. No matter how major or minor an operation is, it tends to raise a certain level of anxiety in every patient (Taskin, 2008).
The prevalence of pain in general population of U.S is 35.1% (Williams et al., 2001). Michael et al., (2011) did a web based systematic search on the influence of preoperative surgical intervention on postoperative early outcome and they found that preoperative Trait and State Anxiety can complicate postoperative recovery. Pain after abdominal surgery delays the discharge of the patient from the hospital and increase the health care cost because of longer hospital stays, the need to treat the negative effect of pain, and it also results in the patient’s loss of productivity (Black & Hawks, 2005; Huang, Cunningham, Laurito, Chen, 2000). This further contributes to diminished quality of life by isolating individual from important social stimulation, amplifying the functional and emotional losses already experienced from undertreated pain. American Pain Society (2006) reported that 59% of them felt the impact on their quality of life. These effects have become a challenge for health professionals, who have a role to control and relieve acute postoperative pain by administering pain-relieving interventions including both pharmacological and non pharmacological interventions. Uncontrolled pain can lead to other serious health problems like cardiac dysrhythmia, atelectasis, pneumonia and sometimes sensory abnormalities also. Anxiety is another common factor that directly or indirectly influence the level of pain after major abdominal surgeries and impairs the quality of life.

1.1 NEED FOR THE STUDY

Approximately 25% of the individuals had undergone one or more surgical procedures during the three preceding years and ~40% of them reported persistent pain in the area of surgery. Johansen et al., (2012) reported of moderate to severe pain by 18.3% of the patient’s Breivik et al., (2006) pointed to severe pain
associated with decreased patient satisfaction, delayed postoperative ambulation, development of chronic postoperative pain, an increased incidence of pulmonary and cardiac complications and increased morbidity and mortality. Kehlet et al.(2006); Popping et al.(2008).

The treatment for pain is classified into opioids, non-opioids and anesthesia; the pharmacological intervention for pain has its own limitations in the form of adverse effects and physical tolerance. Widely used analgesics are Non-Steroidal Anti Inflammatory Drugs (NSAID) and Paracetmol (Acetaminophen). These drugs have been associated with adverse effects. Paracetmol toxicity is a leading indication for liver transplantation in UK(James, Letzigl and Simpson (2009) and a common cause for poisoning. Vender et al.,(2013) and Lanas et al.,(2005) reported that all forms of NSAID are associated with dose dependent toxicity such as dyspepsia, ulceration and bleeding and reported in their study that small dose of NSAID was associated with increased risk of death in patients with history of myocardial infraction at a hazard rate of 1.45; 95% confidential interval; 1.29-1.69.

Poleshuck et al.,(2006) and Peterset et al.,(2007) reported in their studies that the high use of analgesic for the first seven days of surgery have high association with chronic postoperative pain. According to the estimation of Substance Abuse and Mental health Services Administration (2011) 22.6 million Americans aged 12 years and above reported using an illicit substance in the previous month and among those individuals 7 million of them met inclusion criteria for drug use disorder and also they found that 5.1 million people had used
prescription for pain in a nonmedical or non-prescribed manner of which 75% was youth (Frese and Elden, 2011 and Boyd, Cabe and Cranford, 2006) and 80% of the population was above the age of 12 years and reported to have borrowed medication from their friends and family members (SAMHSA, 2011). Prescription pain killer overdose killed nearly 15,000 people in US in 2008 (American Pain Society).

Inadequate pain control may increase sympathetic nervous system tone and contribute to cardiovascular complications such as myocardial ischemia (or) dysrhythmias. Poorly managed pain may also lead to inadequate respiration and subsequent atelectasis or pneumonia (Rodgess et al., 2000). Persistent postsurgical pain is very high among younger individual than elderly people. (Kalliomaki et al., 2008). Johansen et al., (2012) and Sipila et al., (2012) reported that high body mass index is related to higher risk for development of persistent postsurgical pain. Persistent postsurgical pain is clearly a major cause of chronic pain and hence an important public health problem. Sensory abnormalities is very high among patients with chronic postsurgical pain [Mantyselka, Miettola, Niskanen, Kumpusalo (2008)] and persistent pain has strong association with glucose metabolism.

Surgical anxiety is a psychological issue where a patient’s fear of surgery is so significant, that they can begin to have physical symptoms like nausea, increased heart rate, chest pain, sleeplessness etc. Many patients with severe anxiety will postpone or avoid surgery, even if it is harmful to their health. Controlling their anxiety to allow surgery to proceed is essential.
Kaunisto, Jokela, Tallgren,Kambur ;Tikkanen (2013); Clarke, Kay, Mitsakakis and Katz(2010); Quattin et al.,(2006) and Black, Hawks and Huang et al.,(2005) found in their studies that the state anxiety was significantly associated with acute postoperative pain and decreased the quality of life. Kalso et al.,(2013) recommended that the psychological intervention in the management of persistent pain should be studied. Peters et.al.,(2007) found in their study that the impact of preoperative anxiety as a risk factor for chronic postoperative pain has been demonstrated in surgical procedures such as abdominal surgery, breast cancer and knee replacement surgery.

Kiyohara et.al(2004) conducted a study to evaluate the level anxiety on the day before surgery as related to the information known by the patient regarding the diagnosis, surgical procedure, or anesthesia. Patients reported their knowledge of diagnosis, surgery, and anesthesia. The Spielberger State-Trait Anxiety Inventory (STAI) was used to measure patient anxiety levels. One hundred and forty-nine patients were selected and comprising 82 females and 38 males and interviewed. The state-anxiety levels were alike for males and females (36.10 ± 11.94 vs.37.61 ± 8.76) (mean ± SD). Trait-anxiety levels were higher for women (42.55 ± 10.39 vs. 38.08 ± 12.25, P = 0.041). Patient education level did not influence the state-anxiety level but was inversely related to the trait-anxiety level. Knowledge of the diagnosis was clear for 91.7% of the patients had clear knowledge on surgery and 37.5% an anaesthesia. Unfamiliarity with the surgical procedure raised state-anxiety levels (P = 0.021). A lower state-anxiety level was found among patients who did not know the diagnosis but knew about the surgery (P = 0.038).
Jawaid, Mushtaq, Mukhtar and Khan (2007) conducted a study to ascertain the preoperative anxiety level and different factors responsible in a patients admitted for an elective surgical procedure in a tertiary care public hospital. Anxiety levels were measured in admitted patients of the Civil Hospital, Karachi, Pakistan awaiting elective surgery from October to January, 2006. In the afternoon preceding their surgery, patients were asked to complete 2 visual analogue scales (VAS) regarding anxiety about the proposed surgery and anesthesia (range, 0 = ‘not anxious at all’ to 100 = ‘extremely anxious’). They were then asked to select different factors responsible for their anxiety from a list. Mean anxiety score for surgery was 57.65±25.1 and for anesthesia was 38.14±26.05. There was a statistically significant high level of pre-operative anxiety in females as compared to males (p<0.01). The most common factors contributing to anxiety were concern about family in 173 (89.6%) patients, fear of complications in 168 (87%), results of operation in 159 (82.4%), and postoperative pain in 152 (78.8%). Fifty six percent of patients thought that their anxiety would be lessened by a detailed explanation regarding operation and anaesthesia.

Complementary therapy as an adjuvant therapy may have the potential to improve pain management and palliate acute postoperative pain. Several complementary therapies can increase the effectiveness of medical treatment and enhance the patient’s comfort; for example soothing music, relaxation, mind-body techniques, herbal medicines, hypnosis, therapeutic touch and reflexology (Smith, Collins, Cyna and Crowther, 2003). Foot reflexology was chosen as an alternative nursing intervention in relieving acute postoperative pain in this present study.
Several studies have been conducted earlier to investigate the effect of reflexology on postoperative pain in cancer patients and none of the studies were on patients undergoing major abdominal surgery for benign conditions/diseases.

Reflexology is an increasingly popular complementary and alternative medical therapy in which the massage zones of the feet correspond to different parts of the body. According to Sunshine et al.,(1996) the analgesic effects of reflexology can be discussed with the help of Gate theory, Serotonin hypothesis and the restorative-sleep hypothesis. According to gate theory, as pressure receptors are longer and more myelinated than pain fibers, pressure signals from reflex therapy are transmitted faster and close the gate to pain signals. The serotonin hypothesis proposes that reflex therapy increases the serotonin levels, which is thought to modulate the pain-control system, whereas the restorative-sleep hypothesis explains that as substance P, a neurotransmitter associated with pain, is released in the absence of deep sleep, promotion of restorative sleep by massage reduces substance P and pain.

The investigator conducted descriptive study to rule out the prevalence of acute post operative pain after general surgery among patients admitted in Sri Ramachandra Hospital.(2007) The result revealed that a high percentage of severe post operative pain was commonly observed during 3rd and 4th post operative days. The level of knowledge on practice and use of complimentary and alternative therapy among patients and their care givers(2008) found that 67% of them were unaware about CAM use to control acute post operative pain and 13% of them reported that they were using CAM for control of common cold,
headache and joint pain and none of them had no idea about the use of reflexology in the control of pain.

The above statistics conclude that pain and anxiety are very common in post surgical situation and available managements are difficult to be continued because of drugs side effects. The drugs side effects ranges from simple nausea, vomiting to acute renal failure, cardiac dysrhythmia etc. In this current study, the investigator has introduced Foot Reflex Therapy which is a modified form of foot reflexology. Reflexology is defined by the International Institute of Reflexology as a manual technique based on the theory that reflex areas in the feet and hands correspond to all glands, organs and parts of the body. The current use of reflexology for pain relief is based on the western neuromatrix theory of pain (Loeser & Melzack, 1999; Melzack, 1999). The theory is the expansion of the Gate Control Theory (GCT) of pain, that proposes that pain is a multi dimensional experience involving three major psychological dimensions: sensory-discriminative, motivational-affective and cognitive-evaluative.

**Mechanisms of Foot Reflex Therapy**

Foot Reflex Therapy is the modified form of Foot reflexology. In foot reflex therapy, pain modulation is based on Gate Control Theory. The foot as a part of the body, is used to modulate the pain. Each foot contains more than 7000 nerve endings (Bright, 2001) and many studies support that foot reflexology acts in pain modulation and control of pain. In this therapy, 12 basic steps namely head spin, ankle slide, ankle rotation, side twist, foot twist, plantar pressure, sole press, dorsal groove press, ankle massage, top of foot, crease, side and closing are
followed. All the steps are based on the concept of efflurage, petrisage, tappotment and friction. These movements will stimulate the nerve fibres (A beta fibers). The foot dermato layer contains tactile and pressure receptors which are highly myelinated than the pain fibres where the receptors transmit the impulses to the central nervous system (CNS). The dorsal horn of the spinal cord will be activated through the inhibitory interneuron’s, whereas the excitatory interneurons are inhibited resulting in inhibition of T-cells functioning, thus closing the gate. Therefore the pain signal is not transmitted to ascending system of neuron pathway to the brain and the brain does not receive the pain sensation.

Based on serotonin theory, even tactile stimuli like simple massage also produces neurotransmitters like mood elevators such as serotonin, entoxicosine and endorphin. Based on this theory the foot reflex therapy, acts as stimuli and release neurotransmitter. Serotonin is one of the mood elevators which will reduce the level of anxiety. As pain and anxiety are closely related to quality of life, its reduction leads to improvement in quality of life.

In the current study, the investigator has introduced Patient Care Giver (PCG) to deliver the FRT based on the recommendation of Nancy et al.,(2007). They were taught and trained by the partner to deliver foot reflexology for 30 minutes at hospital setup and found significant reduction of pain score in the study group than the control group (F[1,83]=11.74, p=0.001, eta squared=0.12, a moderate effect) and on the experimental and control subgroup with moderate to severe pre intervention pain (F[1,29]=8.41, p=0.007, eta squared=0.23, a large effect). The total experimental group had a 34% reduction in pain and the total
reduction of anxiety in the study and the control group was
\((F[1.83]=12.27,p=0.001,\text{eta squared}=0.13,\text{a moderate effect and on the}
\text{experimental and control subgroup with moderate to severe pre intervention}
\text{anxiety}(F[1.47]=8.16,p=0.006,\text{eta squared }=0.15,\text{a moderate effect}).\text{The total}
\text{reduction of anxiety score in the study group was 48\%}.

Attias and Schiff (2012) conducted a comparative study to evaluate the
effectiveness of reflexology in improving peri-operative patient centered
outcomes. 234 adult patients undergoing various abdominal surgeries were
selected in which 89 patients received standard medical care and 145 patients
received reflexology on top of standard medical care. Numeric VAS scores for
anxiety, pain and well-being were collected pre and post treatment. The results of
the study revealed a significant reduction of VAS score for all outcomes i.e.
anxiety score reduced from 5.2 to 3.2 (n=145, p<0.0001), pain from 5.3 to 2.9
(n=79, p<0.0001) and well-being improved from 5.2 to 6.7 (n=69, p<0.0001).
Symptomatic improvement was significantly better in reflexology

group as compared to the standard of care group for all parameters (p>0.0001).
The patients in the sub group experienced moderate to severe symptoms, more
prominent improvement was found, in anxiety were the scores reduced from 7.1 to
2.7 (n=94, p<0.0001); pain from 7.2 to 4 (n=54, p<0.0001) and well-being improved
from 3.7 to 6.4 (n=47, p<0.0001). The study concluded that reflexology therapy
significantly improved the common symptoms in patients who had undergone
surgical intervention.
Another study conducted by Sei Young Oh, Ching Ha, Young Soon Le, examine the effectiveness of hand reflexology on pain, feeling and nursing practice in post-operative patients in 45 samples from surgical ward of clinical setting using VAS for pain and feeling, physiologic measuring and questionnaire for nursing care was conducted. Intervention consisting of 5 minutes hand reflexology therapy applied to both hands of participants by two research assistants at same time where the study findings revealed that there was a significant pain relief \( t=-4.04, p=0.0001 \), improvement in feeling \( t=19.44, p=0.001 \) and an increase in skin temperature \( t=3.54, p=0.001 \). The study also found that the applied skills that subjects preferred were press-rotate \( 80\% \), press walk \( 35.56\% \) and press rolling \( 31.11\% \) and the effectiveness of nursing practice scored 3.99 ±1.97 out of 5 and the nurse patient relationship and the effective response of nursing intervention ranked the highest 4.31.

Hughes, Krirnakriengkrai, Kumar and Donough (2011) conducted a feasibility study to assess the effect of reflexology and control interventions on anxiety, heart rate and blood pressure following mental stress test. The study recruited 25 participants who were randomly allocated to either reflexology group or control group in the Health and Rehabilitation science Research Institute at University of Ulster, Northern Ireland. Mental Stress was induced before and after intervention. Participants in the reflexology group received 20 minutes of reflexology and the control group received 20 minutes of relaxation with therapist holding each participant’s feet. The study design was considered to be feasible where significant reduction in systolic blood pressure \( 22\%, p=0.03 \) and in diastolic blood pressure \( 26\%, p=0.01 \) during mental stress following reflexology.
compared to the stress period prior to intervention. In contrast there was a 10 %
reduction in systolic blood pressure (p=0.03) but a 5% increase in diastolic blood
pressure(p=0.67) during the period of mental status following the control
intervention compared to results obtained during mental stress prior to the
intervention.

Reflexology, thus a form of touch therapy, that is historically based on the
belief in reflex points on the hands and feet that, when stimulated by the
therapists’ fingers and hands, can relax the whole body to the patients in any
comfortable position, with no movement required. It is effective in helping
diminish a variety of adverse symptoms, such as stress, fatigue, pain and
tension(Berenson,2006).Also reflexology can decrease isolation and loneliness,
and have positive effects on physiological and psychological parameters. Being
one of the health professionals, nurse has a role to control and relieve acute
postoperative pain by administering pain relieving interventions including both
pharmacologic and non-pharmacologic interventions. Thus, there is an overall
consensus of opinion in the literature which recommends that further research is
warranted to determine the effects of reflexology in the form of well conducted
randomized clinical trials. Hence the investigator was interested in investigating
the effect of foot reflexology on acute postoperative pain, anxiety and quality of
life of patients who underwent major abdominal surgeries.
1.2 STATEMENT OF THE PROBLEM

Effectiveness of foot reflex therapy on postoperative pain, anxiety and quality of life among patients subjected to selected major abdominal surgery at Sri Ramachandra Hospital Porur.

1.3 OBJECTIVES OF THE STUDY

1. To determine the effectiveness of foot reflex therapy on pain among patients after major abdominal surgery.
2. To determine the effectiveness of foot reflex therapy on anxiety among patients after major abdominal surgery.
3. To determine the effectiveness of foot reflex therapy on Quality of Life among patients after major abdominal surgery.
5. Associate pain, anxiety and Quality of Life with specific background and clinical variables

1.4 OPERATIONAL DEFINITIONS

Effectiveness

Effectiveness refers to the extent to which the foot reflexology brings desired change in the level of pain, anxiety and quality of life of patients with acute postoperative pain who underwent abdominal surgeries as measured by significant change in pain intensity, level of anxiety and quality of life score using Visual Numeric Pain Intensity Scale, State Trait Anxiety Inventory Scale and WHO BREF Quality of Life Index.
Foot Reflex therapy

Foot reflexology refers to a specialized foot massage consisting of series of procedures such as head spin, ankle slide, rotation massage, foot side twist, planter pressure, sole massage, dorsal press, groove press, top of foot crease side and closing over the predefined pressure points on the patient’s feet by applying direct pressure by palm and reflex stick to stimulate the spinal points during hospital stay; thereafter by the care giver who observed the demonstration.

Pain

Pain refers to the subjective physical discomfort experienced due to tissue trauma by the patient after a major abdominal surgery as measured using the Visual Numeric Pain Rating Scale (VAS) and reflected by physiological parameters which include pulse rate, respiratory rate, blood pressure and oxygen saturation.

Anxiety

Anxiety refers to the subjective feeling of uneasiness experienced by the patients undergoing major abdominal surgery which was measured by the investigator using State Trait Anxiety Inventory Scale (STAI).

Quality Of Life

Quality of life refers to patient’s perception about the physical, psychological, social and spiritual wellbeing of oneself as measured using WHO BREF Quality of Life Index (WHO BREF QOL).
Major abdominal surgery

Major abdominal surgery in this study refers to an elective open abdominal surgery under general/spinal anaesthesia for duration of more than 45 minutes with an incision size of more than 4 cms.

1.5 HYPOTHESES

H1 : There will be a significant change in pain score of patients who receive Foot Reflex therapy than those who do not.

H2 : There will be a significant change in the level of anxiety of patients who receive Foot Reflex therapy than those who do not.

H3 : There will be a significant change in the Quality of Life of patients who receive Foot Reflex therapy than those who do not.

H4 : There will be a significant change in pulse rate of patients who receive Foot Reflex Therapy than those who do not.

H5 : There will be a significant change in Respiration of patients who receive Foot Reflex Therapy than those who do not.

H6 : There will be a significant change in systolic Blood Pressure of patients who receive Foot Reflex Therapy than those who do not.

H7 : There will be a significant change in diastolic Blood Pressure of patients who receive Foot Reflex Therapy than those who do not.

H8 : There is a significant change in Oxygen saturation of patients who receive Foot Reflex Therapy than those who do not.
1.6 ASSUMPTIONS

• Early intervention for acute postoperative pain can enhance the postoperative recovery.

• Hospitalization and surgery create some degree of anxiety.

• Abdominal surgery may impair the quality of life.

• Foot Reflex therapy may promote mental well-being and thereby may improve Quality of Life.