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**COGNITIVE BEHAVIOUR METHOD AND ANXIETY
REDUCTION BEFORE SURGERY**

BY

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**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF
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DECLARATION

This thesis “cognitive behaviour method and anxiety reduction before surgery” is a study done and presented to the Department of Psychology for the award of the Master of Philosophy (M. Phil) degree in (Clinical) Psychology.

Except for references duly cited, it represents an Original study, which has not been presented anywhere for a degree.

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DEDICATION

Dedicated to all surgical patients past and present

My Dad and Mum, Barima, Vivian, Catherine and Robert.



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ABSTRACT

This study was conducted to find out the effectiveness of cognitive behaviour therapy on preoperative anxiety and post surgical recovery. The study involved forty (40) elective surgical patients of both genders who came in for either a major or minor surgery at the surgical block of the Korle-Bu Teaching hospital. Data was collected by means of a questionnaire-interview. The experimental group went through the cognitive behavioural therapy, which comprised of cognitive techniques, together with breathing-in techniques and progressive muscle relaxation. This group was compared with the control group who went through no intervention. It was found out that the experimental group recovered faster than the control group. Also the anxiety levels of the experimental group were lower prior to surgery than the control group. The number of days patients spent in the hospital together with the pain medication taken after the operation was also considered. Other factors considered included gender and age in relation to the intervention which showed no significant difference, and anxiety level and type of surgery, which did not also yield any significant difference. On the whole, cognitive behaviour method was found to be very beneficial in reducing anxiety prior to surgery and facilitating postoperative recovery among elective surgical patients.

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CHAPTER ONE

INTRODUCTION

Getting ready for surgery is a lot like getting ready for a big athletic event. You have to understand the rules of the game, devise a good game plan, and make sure you are prepared-physically and mentally. As patients, we tend to feel that our fate is entirely in the hands of the surgeon and the medical staff. There is a lot we can do before surgery to help the process, minimize trauma and discomfort, and recover faster. As with a sporting event, the better prepared you are mentally, the better your body responds (Sobel & Ornstein, 1997).

Anxiety is a basic human response to impending danger and is one of the most common reactions to illness (Wilson-Barnett, 1981). Hospitalization regardless of disease provokes anxiety, particularly in patients undergoing surgery (Cochran, 1984) and many studies have repeatedly stated how common anxiety is in this setting (Ramsay, 1972; Salmon, 1993; Leinonen, Leino-Kilpi, Jouko, 1996; Mitchell, 1997).

Anxiety is naturally very common around surgery. A large number of patients express moderate to severe anxiety and fear related to undergoing surgery. This nervousness has got its own implications on the health of the patients. Most people the researcher spoke to who have undergone surgical operations before could not find words to explain their anxiety.

One surgeon, Dr. Potakey, the researcher spoke to at the Korle Bu teaching Hospital complained that there have been cases where he has had to operate on hypertensive

patients but due to anxiety their blood pressure had risen to such a level that he has had to refer the patient back to the physician who through medication would reduce the blood pressure. In such a case the surgical procedure would have to be postponed.

According to Barlow (1988) anxiety is a mood state characterized by marked negative affect and somatic symptoms of tension in which a person apprehensively anticipates future danger or misfortune. An individual therefore experiences anxiety in response to an event he sees as potentially threatening and dangerous.

This reaction is known as the fight/flight response, because all its effects are aimed at escaping potential harm, either by confronting the source of danger (fight) or by evading it (flight). Anxiety is also a uniquely human experience. It is a multisystem response to perceived danger or threat. It is triggered by a combination of biochemical changes in the body, the patient's personal history, memory as well as social situation (Barlow, 1988).

Although some anxiety is good, too much is not. Excessive, uncontrollable anxiety can be debilitating. An individual may fail a test in Statistics, because she cannot focus on the questions, or she may spend too much time thinking about how awful it would be to fail making it nearly impossible to think about anything else.

Anxiety in moderate doses helps us think and act more effectively. Our physical and intellectual performance is driven and enhanced by the experience of anxiety. Liddell (1949) first proposed the idea when he called it "shadow of intelligence". He thought the ability of the human race to plan in some detail for the future was connected with

the experience of anxiety – specifically that gnawing feeling that things could go wrong and we had better be prepared. Therefore one would be better prepared for a job interview coming up if one were a bit anxious.

For some time a simple correlation has been positioned between lower preoperative anxiety and better postoperative recovery using indices such as duration of hospital stay or the amount of post-procedural analgesia that patients requested (Salmon, 1993).

However, Salmon (1993) disagrees with relying on such indices. According to Salmon, where more objective indices of surgical stress are used, such as measurements of postoperative endocrine and metabolic changes, the evidence presents an altogether different picture.

Hormonal responses such as postoperative endocrine and metabolic changes are collectively known as the 'stress response' (Selye, 1976) and are widely believed to compromise recovery (Ellis and Humphrey, 1982; Anand, 1986).

Studies conducted by Wilson-Barnett (1981); Mayande and Salmon (1992) further indicate that we may need a certain level of fear and arousal to prepare us for the stress of surgery. The idea that within certain limits anxiety can be beneficial is supported by a number of control trials involving the psychological preparation of surgical patients. (Wilson-Barnett, 1981; Salmon, Evans, & Humphrey, 1986; Mayande and Salmon, 1992).

Wilson-Barnett (1981) shows that preoperative interventions that significantly decrease patients' subjective anxiety levels actually increase the postoperative hormonal stress response. Thus, Salmon (1993), in line with Guerra and Aldrete (1980), are of the view that a moderate or 'healthy' anxiety level should be the target for anxiety-reducing interventions as opposed to low-anxiety levels or the eradication of anxiety altogether.

Most people find surgery to be an extremely stressful event that gives rise to a great deal of fear and anxiety. Few people realize, however, that steps can be taken to help prepare a person for surgery so that stress is minimized and surgical outcome is improved (Reeves, 1999).

Although anxiety is related to fear, it is not the same thing. According to Halgin & Whitbourne (2000), fear refers to an innate, almost biologically based alarm response to a dangerous or life threatening situation. Anxiety on the other hand is more future-oriented and global, referring to the state in which an individual is inordinately apprehensive, tense, and uneasy about the prospect of something terrible happening.

Anxiety is often unfocused, vague, and hard to pin down to a specific cause. Sometimes anxiety being experienced in the present may stem from an event or person that produced pain and fear in the past. In this experience, the anxious individual may not be consciously aware of the original source of the feeling.

Anxiety therefore has an aspect of remoteness that makes it hard for people to compare their experiences of it. Whereas most people will be fearful in physically dangerous situations, and can agree that fear is an appropriate response in the presence of danger, anxiety is often triggered by objects or events that are unique and specific to an individual. An individual might be anxious because of a unique meaning or memory being stimulated by present circumstances, not because of some immediate danger (Ford-Martin, 1999).

It is also important to distinguish between anxiety as a feeling or experience and an anxiety disorder as a psychiatric diagnosis. A person may feel anxious without having an anxiety disorder. According to the American Psychiatric Association (1994) Diagnostic and Statistical Manual of Mental Disorders, (DSM IV) classification, anxiety becomes a psychiatric diagnosis when it is seen in such cases as panic disorder, phobic disorder, post traumatic stress disorder, generalized anxiety disorder, obsessive compulsive disorder, among others.

There are three basic patterns to anxiety disorders. In panic and generalized anxiety disorder the anxiety is unfocused; either it is with the person continually or it seems to descend "out of nowhere", unconnected to any special stimulus. In phobias the fear is aroused by an identifiable object or situation. Finally in obsessive-compulsive disorder, anxiety occurs if the person does not engage in some thought or behaviour that otherwise serves no purpose and may in fact be unpleasant, embarrassing and inconvenient (Johnston M, 1980).

The focus of this study would however be on anxiety as a feeling or reaction prior to surgery.

The symptoms of anxiety are expressed through three interrelated response systems: the physical system, the cognitive system, and the behavioural system. When danger is perceived or anticipated as in a major illness, surgery or hospitalization, the brain sends messages to the sympathetic nervous system, which produces the fight/flight response. The activation of this system produces many important chemical and physical effects that mobilize the body for action (Barlow, 1988).

Adrenaline and nor-adrenaline are released from the adrenal glands. The heart rate and strength of heart beat increase, readying the body for action by speeding up blood flow and improving delivery of oxygen to the tissues. There is also an increase in the force at which blood is pumped out of the heart, dilation or widening of coronary arteries and dilation of bronchial tubes (through which air passes to and from the lungs). The speed and depth of breathing increase, which brings oxygen to the tissues and removes waste (Barlow, 1988).

This may produce feelings of breathlessness, choking or smothering, chest pains as well as sensations of tightness in the neck, shoulders or hands. Blood supply to the head may decrease, leading to unpleasant but harmless symptoms such as dizziness, blurred vision, confusion, hot flushes, headaches, lightheadedness and numbness.

Sweating increases, which cools the body and makes the skin slippery. Salivation decreases, resulting in dry mouth. Decreased activity in the digestive system may

lead to nausea and a heavy feeling in the stomach, vomiting, diarrhea and tingling. Muscles tense in readiness for fight/flight: leading to subjective feelings of tension, aches and pains, as well as trembling (Barlow, 1988).

These symptoms are known as the physical or somatic symptoms and are produced by the hormonal, muscular and cardiovascular reactions involved in the fight/flight reaction.

Rapee (1991) is of the view that the cognitive symptoms of anxiety include recurrent or obsessive thoughts, feelings of doom, fear inducing thoughts or ideas, confusion, indecision and inability to concentrate. This can create problems around the time of surgery for patients since they are normally given information that may be vital to their recovery and being anxious makes it difficult for them to understand or remember things they are told.

The behavioural system comprises the behavioural symptoms of anxiety, which include pacing, trembling, general restlessness, hyperventilation, facial tension, pressured speech, hand wringing or finger tapping, foot tapping, fidgeting and irritability. Other behaviours are forgetfulness, agitation, violent outbursts, anger, shouting, aggression and insomnia – whereby sleep is affected in that one may have difficulty getting to sleep and even when asleep might be restless and wake up several times during the night. One can also have vivid dreams that might turn into nightmares and wake up in the morning feeling tired and unrefreshed.

There are different categories of surgical cases. We have elective or emergency surgery, in-patient surgery or out-patient/ambulatory/day-case surgery, major or minor surgical cases (Dawson, 1996).

For the purpose of this research, elective surgical cases would be considered. Elective surgical cases are planned cases, which can be major or minor surgery, in-patient or out-patient/ambulatory/day-case surgical cases.

Major surgical cases are that in which the patient is admitted over 24 hours before surgery and after the operation stays for more than 24 hours on the ward. This is also known as in-patient surgery. Examples of such cases are, abdominal operations such as typhoid perforations, appendicectomy, cholecystectomy and thyroidectomy. Others are trabeculectomy, brain surgery, urological surgery, tonsillectomy, fibroid operations and many others.

Minor cases are also known as day-cases/ambulatory/outpatient surgery. Cases of this nature usually take two hours or less and involve minimal blood loss and a short recovery time. The patient does not remain overnight but is admitted and discharged on the same day. Examples are, removal of lumps and bumps (breast lump or skin bump), laparoscopy, hernia repair etc (Larson, 1996).

Studies show that most patients due to undergo surgical procedures demonstrate moderate to high levels of anxiety (Anderson & Masur, 1983).

According to Reeves (1999), majority of patients commonly and frequently report fear and anxiety before surgery. Most patients indicate that their fears include: those

that arise from not having enough information about what will take place during the surgery, concerns about whether or not the procedure will be a success, concerns about post-operative pain and the course of recovery, fears about being separated from home and being in a strange hospital environment, worries about how the family will cope during this time, fears that mistakes will be made during the surgery and/or that the patient won't survive the surgery, fear of waking up during the surgery.

According to Totman (1987), this is hardly not surprising since the patient who has probably been on a long waiting list is formally admitted to a strange and rather threatening environment, is administered to in a variety of technologically sophisticated and alarming ways and is systematically rendered unconscious having signed a form apparently exempting those giving the treatment from blame should anything go wrong.

The cause of anxiety reaction is complex and may involve an unconscious conflict about essential values and goals of life; a threat to or change in health status; socio-economic status, role functioning, environment or interactive patterns; situational or maturational crises; problems involving interpersonal relationships or unmet needs (Smeltzer & Bare, 1992).

The general term used to describe these difficult and disturbing, physiologic and psycho logic situations is stress. Lazarus and Folkman (1984) define stress as a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well being. In their view, stress appraisals include harm or loss, threat and challenge.

Having surgery can therefore be considered as a stressor since most patients are concerned about losing independence, his integrity as well as his control over his effectiveness with coping with the environment.

Any surgical procedure is preceded by some type of emotional reaction in a patient, whether it is obvious, hidden, normal or abnormal. Pre-operative anxiety is an anticipatory response to experience that the patient may view as a threat to his customary role in life, body, integrity or life itself.

Seyle (1976) developed a biochemical model of stress known as the General Adaptation Syndrome (GAS). This clearly describes what occurs physiologically in the human body during a stress response. He indicates that stress is the non-specific response of the body to any demand made upon it. The fight/flight response is termed stress reactivity and it is similar to that related to anxiety.

The model of stress shows that it consists of three components. The stressful situation, which is, the life situation that is perceived or cognitively appraised to be distressing. Emotional reaction such as fear occurs as a result of the stress. Feelings such as fear, anger, insecurity or feelings of being rusted, overwhelmed, frustrated or helpless maybe results of perceiving life situation as stressful.

According to Smeltzer & Bare (1992) an individual who is faced with surgery is beset with a lot of fears. These include fears of the unknown; pain; anesthesia or death. There are also concerns about loss of work time, the possible loss of job, the

responsibility of family support and the possibility of permanent incapacity further contribute to the enormous emotional strain created by the prospect of surgery.

The extent of the patient reaction is based on many factors including the discomforts and changes he anticipates whether physical, psychologic, spiritual or social and the surgical outcome he envisions. "Will the operation improve his present condition"; "Will he be disabled". Financial worries create the fear about how to pay for medical bills.

All these concerns of the surgical patient provoke anxiety in the individual, which eventually leads to stress.

The fears that a surgical patient is faced with leads to the second component that is physiological arousal. Pre operative anxiety is characterized by subjective, consciously perceived feelings of apprehension and tension accompanied by autonomic nervous system (ANS) arousal, which leads to an increase in blood pressure, heart rate, and respiratory rate. This is potentially harmful because heightened levels of heart rate and blood pressure tax the cardiovascular system and increase oxygen demands and the heart's workload.

If physiological arousal is chronic or prolonged illness or disease may result. In addition to illness or disease, stress can lead to other consequences as in the case of surgery it can cause a difficult period of induction by the anaesthetist leading to unpleasant emergence from anaesthetic agent, increased cortisol and catecholamine output or any such negative effects.

Beck (1984) refers to the three “stress syndromes (hostility, fear, and depression) that represent emotional responses. In hostility syndrome individuals are hypersensitive to events that signal restraint or assault, whereas in the fear syndrome individuals are highly sensitive to danger. In the depression syndrome, the negative cognitive triad is activated. The basic tenet of this theory is that stress consists of the activation of cognitive schemas, with an idiosyncratic content specific for each syndrome.

Appraisals of the significance of an event (primary appraisal) and of the availability and effectiveness of coping responses (secondary appraisal) interact in determining the nature of stress reactions.

According to Garbee & Gentry (2001), surgery can be appraised as irrelevant, benign, harmful, threatening or challenging. The idea of surgery can be very stressful and confusing. This stress response is not only uncomfortable but can actually undermine the immune system at a time when the body makes great demands on the immune system for wound healing and recovery.

Traditionally, hospitals have either not addressed any preoperative issues other than a consent form, or simply provided handout sheets and tours to give practical information about what will be happening to your body. You must prepare yourself mentally, emotionally and physically. With Korle-Bu teaching hospital for instance, most nurses have been trained to reduce anxiety before surgery but due to the pressure, that is the nurse-patient ratio and the lack of motivation on the part of the nurses, this is absent.

Psychological preparation of patients undergoing medical or surgical procedures facilitates coping and recovery (Contrada, Leventhal, & Anderson, 1994). Consequently there has been a growing interest in the possible influences of pre operative anxiety on the course and outcome of surgical treatment and in the potential benefits of anxiety reducing interventions.

According to Sobel & Ornstien (1995), doctors are fond of saying “the way a patient goes into anaesthesia is the way a patient will come out”. It certainly seems true that those who feel relaxed, optimistic and in control are likely to feel better and recover faster than those who are highly anxious and vulnerable. Preparing one self physically, mentally, spiritually and emotionally before surgery can therefore go a long way to reduce anxiety prior to surgery.

People have different ways of responding to stress and anxiety in their lives, and these maybe useful in facing surgery. Some people exercise or use relaxation techniques such as deep breathing. Some try to remove or relieve anxiety by thinking or talking about the feelings or issues involved. Others use distraction techniques such as reading or listening to music to keep their minds off the problem. The anxiety some people feel, especially during the previous night and immediate hours before the operation is quite severe and they may need extra help to cope.

For the purpose of this research, cognitive behavioural intervention would be used. It is an action-oriented form of psychosocial therapy that assumes that maladaptive, or faulty, thinking patterns cause maladaptive behaviour and negative emotions. The

treatment focuses on changing an individual's thoughts (cognitive patterns) in order to change his or her behaviour and emotional state (Ford-Martin, 1999).

The cognitive behaviour method is a relatively recently developed form of therapy that arose from a desire to apply a scientific or objective method to more subjective or psychological problems (e.g. like depression). It is, as its name suggests a combination of cognitive techniques (these are mainly ideas to do with how we think) and behavioural techniques (ideas about how we act).

The cognitive behaviour method is a scientific approach, which involves lots of testing and checking. Most of the treatments concentrate on what is happening now, and not so much on the past or your childhood. Its main purpose is to help solve your particular problems, without going into your own personality too much. The therapist usually tries to work with you, as if you were working on some sort of project together (Enright, 1997).

The cognitive behaviour therapy determines clear goals for treatment and sets out to achieve them. It is usually shorter than other forms of therapy and is very popular among people who work in the mental health field at the moment. It is also very effective at helping to sort out specific clear problems (Enright, 1997).

Reeves (1999), asserts that the amount of stress that a patient feels before surgery is important and should not be taken lightly. Patients who have high stress, anxiety and fear tend to have poorer surgical outcomes, more pain, and increased use of analgesics, longer hospital stays and more post-operative complications. He goes on

to suggest that pre-surgery stress, anxiety and fear alter the functioning of the body's endocrine and immune systems. These changes affect the release of important chemicals in the brain, which in turn may affect wound healing and other post-surgery processes. Stress therefore has a negative effect on healing.

Therefore, by preparing yourself psychologically for surgery you can enhance your chances of survival, minimize discomfort and recover faster.

Aim of the study

Surgery is a life event of dramatic significance to many people. The surgical experience can disrupt the personal, professional, and economic lives, as well as the physical bodies of patients. Fear, anxiety and a range of other emotions accompany the patient in the surgical suite. In a study by Petry (2000) of the most common preoperative fears surrounding surgery in 247 patients, it looked at the percentage of patients who had specific fears preoperatively and polled the same patients after their operation regarding the same fears if they required another operation.

Post-operative pain (65% before operation, 59% after), not remaining asleep during the procedure (54%, 28%) sickness and vomiting (48%, 43%), not awakening from anesthesia (34%, 21%) and fear of injections (34%, 27%) were the commonest fears. This suggests that patients' experiences could have been improved.

It is therefore the aim of this study to examine the peculiar factors that lead to pre operative anxiety. Further to determine whether pre operative psychological state in the form of anxiety can affect physical recovery from surgery. Finally to observe if

surgical patients who go through the cognitive behavioural therapy can have a better post surgical recovery based upon various recovery variables.

Significance of the study

According to Home, Vatmanidis and Careri, (1994) patients who use positive cognitive coping and behavioural strategies experience less intense postoperative pain, are more compliant before, during and after surgery, spend less time in the hospital and function more appropriately in the long-term.

Therefore this study will in effect help health care professionals wishing to improve upon patient care at the Surgical Blocks of the various hospitals as this could enhance a better doctor-patient as well as nurse-patient relationship.

It would also help by reducing overcrowding at the surgical block of the Korle-bu teaching hospital since patients will be discharged earlier thereby creating room for patients.

Finally it will also reduce cost on the side of the patients because they would be discharged earlier.

CHAPTER TWO

LITERATURE REVIEW

Background of the study

Mind-body interaction

The mind/body connection is the relationship between a person's thoughts, beliefs, attitudes, and the person's nervous system, endocrine system, and immune system. What a person thinks and believes turns into the chemistry, the biology, and the immunity of his or her body. A person's attitude can make a difference in his or her recovery and overall health status. If people believe they are going to be able to manage their pain they will do better. When feelings are positive, people allow them in and when feelings are hurtful they can begin to release them (Stout-Shaffer & Bittman, 1999).

Surgery not only places tremendous demands on the body but on the mind and emotions as well. The prospect of surgery automatically brings issues of vulnerability and mortality to the forefront at both conscious and unconscious levels. Some common concerns are: loss of control over body, mind and environment; loss of identity-surrendering ones usual identity and status to take on the patient role or the sick role; loss of body part, function or change in usual appearance among others.

The mind body medicine also known as behavioural medicine is therefore the field of medicine concerned with the ways that the mind and emotions influence the body and physical health. Originally, Western medicine believed that health depended solely upon the physical mechanisms of the body. The scientific version of the split between the mind and body is generally traced back to the seventeenth-century French philosopher, Rene Descartes (Descartes R, 1991). It took three centuries after

Descartes, for mainstream medicine to begin to accept that the mind plays a major role in health and medicine.

Hippocrates, who was of the idea that the mind and body interact, believed that health depends upon a balance of the body, mind and environment and that disease is caused by imbalances in these areas. Medical science has shown that the nervous system works closely with the immune system (Jouanna, J 1999).

Benson (1975) then came up with “relaxation response” which could reduce blood pressure, respiration rate, heart rate, oxygen consumption, muscle tension and other bodily processes elevated by stress as in the case of surgery by anxiety. Therefore if stress could have harmful effects on health then relaxation response might have the opposite effect.

Anxiety in Surgical Patients

A positive surgical environment should be created for every surgical patient thus creating a positive experience for patients. Man is a bio psychosocial being and therefore the whole patient should be considered – the body, mind and spirit- as it is often difficult to treat only one aspect of an individual.

Surgical patients commonly experience anxiety due to physiological, psychological and environmental stimuli. This unpleasant emotional state is the individual’s psychophysiological response to perceived threat, in this case, uncertainty about the operation. Wilson-Barnett (1979) and Johnston (1980) also confirm that patients having surgery are known to experience anxiety and uncertainty both before and after the operation. To Domar, Noe, and Benson (1987) surgery is a stressor that consistently elicits anxiety in patients.

Anxiety produces complex changes in the neuro endocrine and immune function that interact with current and prior health status and health behaviours to alter behavioural responses, physiological outcomes and ultimately patients' outcomes.

Physiological responses to anxiety include stimulation of the sympathetic nervous system and the hypothalamic-pituitary-adrenal axis, with resultant higher circulating levels of catecholamines and glucocorticoids. This leads to reduced release of growth hormones, suppression of natural killer cell activity as well as, reduced production of antigen-specific antibodies, altered coagulation and altered autonomic tone (Salmon, Pearce, & Smith, 1988).

Physiological complications of anxiety include increased blood pressure, heart rate and respiratory rate (Tusek, Church, and Fazio, 1997; Heitz, Symreng, Scamman, 1992). These physiological complications of anxiety leads to poor circulation and can cause fluctuations in body temperature, urinary urgency, enlarged pupils and loss of appetite (Aldridge, 1993).

Anxiety also leads to increased cortisol levels, which inhibit the immune system and blood clotting (Plumpton and Besser, 1969; Salmon et al, 1988). Increases in oxytocin, antidiuretic hormone and prolactin (Kaufman, 1990). Anxiety also leads to increases in medication by the anaesthesiologist. Preoperative anxiety is regarded as a cause of difficulty in the induction and maintenance of anaesthesia and increased anaesthetic requirements (Goldman, Ogg, & Levey, 1988).

Lastly, conditions that arouse anxiety leads to increase in pain (Mullooly, Levin & Feldman, 1988). The sensation of pain is best avoided as much as possible since pain

can decrease the ability to cough up secretions, making one vulnerable to pneumonia; decrease normal digestion and appetite adding to your hospital stay and decreasing the nutrition the body needs; decrease ability to get out of bed leading to increase risk of blood clots in the legs.

Patients who are more anxious before surgery are more distressed postoperatively and the intensity of reporting of postoperative pain is related to state (context-based) rather than to trait (personality based) anxiety (Johnston, 1980). Some patients are able to control the debilitating effects of anxiety by, for example, refusing to think of the potential dangers of the operative experience. When confronted with pain, however, some patients may have difficulty in maintaining denial and Janis (1958) found that patients with extremely low levels of pre-operative anxiety had high levels of emotional distress postoperatively.

The psychological discomforts anxiety creates can also be seen in the patient's inability to concentrate, recall information and process new information. In the pre-operative patient, anxiety may be due to threats to the patient's self-concept, socio economic status, role functioning, and pattern of interacting and fear of dying.

The surgical patient may be anxious about the way the surgical intervention will alter essential values and life goals. Other behavioural expressions could be voice and hand tremors, insomnia and poor eye contact. The patient may be unable to say he is "uptight" or nervous or express concern about changes in his life (Smeltzer & Bare, 1992).

Patients may perceive the day of surgery as the biggest and most threatening day in their lives. This may be due to unfamiliar, alien environment; loss of freedom;

separation from social structure and communication difficulties. According to a study by Uddin, Abdullah, Jamil, & Iftikhar, (2002), fear of the unknown is the most common even though fears underlying preoperative anxiety are elusive and the person may not be able to identify the cause. To Uddin et al, anxiety due to hospital admission produces imbalances in homeostasis, which elicit physiological and psychological response that can compromise recovery.

Primarily, patients want to be pain-free, nausea-free and relaxed and they want to have some control over their care. They also want to have uncomplicated recovery that progresses smoothly and return to optimum health.

It is based upon this background that the researcher wants to use the cognitive behaviour therapy as intervention strategy to reduce anxiety among patients preparing for surgery.

Many forms of psychological intervention for preoperative patients attempt to return behavioural and cognitive control to the patient and to augment their own resources. The separation of cognitive and behavioural methods of psychological management, however, is often arbitrary and most frequently, in practice, a combination of both methods would be used (Horne et al, 1994). Simple and practical interventions are used widely. Behavioural techniques such as relaxation, slow-controlled breathing and self-hypnosis also have a significant effect on postoperative pain (Wells, 1986).

Cognitive behaviour method refers to a group of techniques that aims at reducing dysfunctional emotions and behaviour by altering behaviour and thinking patterns based on the assumption that prior learning is currently having adverse consequences. The purpose of the therapy is to reduce distress or unwanted behaviour by undoing

this learning or by providing new, more adaptive learning. A change in symptoms follows a change in thinking (or cognitive change) which is brought about by a variety of possible interventions including the practice of new behaviour, analyses of faulty thinking patterns and teaching of more adaptive self-talk (Enright, 1997).

Theoretically, cognitive-behavioural therapy can be employed in any situation in which there is a pattern of unwanted behaviour accompanied by distress and impairment. It is a recommended treatment option for a number of mental disorders, including affective (mood) disorders, personality disorders, social phobia, obsessive-compulsive disorder (OCD), eating disorders, substance abuse, anxiety or panic disorder, agoraphobia, post-traumatic stress disorder (PTSD), and attention-deficit/hyperactivity disorder (ADHD). It is also frequently used as a tool to deal with chronic pain for patients with illnesses such as rheumatoid arthritis, back problems, and cancer. Patients with sleep disorders may also find cognitive-behavioural therapy a useful treatment for insomnia (Ford-Martin, 1999).

Cognitive-behavioural therapy combines the individual goals of cognitive therapy and behavioural therapy. Pioneered by psychologists Aaron Beck and Albert Ellis in the 1960s, cognitive therapy assumes that maladaptive behaviours and disturbed mood or emotions are the result of inappropriate or irrational thinking patterns, called *automatic thoughts*. Instead of reacting to the reality of a situation, an individual reacts to his or her own distorted viewpoint of the situation. For example, a person may conclude that he is "worthless" simply because he failed an exam or didn't get a date. Cognitive therapists attempt to make their patients aware of these distorted thinking patterns, or cognitive distortions, and change them (a process termed cognitive restructuring).

Behavioural therapy, or behaviour modification, trains individuals to replace undesirable behaviours with healthier behavioural patterns. Unlike psychodynamic therapies, it does not focus on uncovering or understanding the unconscious motivations that may be behind the maladaptive behaviour. In other words, strictly behavioural therapists don't try to find out why their patients behave the way they do, they just teach them to change the behaviour (Gelder, 1997).

Cognitive-behavioural therapy integrates the cognitive restructuring approach of cognitive therapy with the behavioural modification techniques of behavioural therapy (Ford-Martin, 1999).

Methods used in pre operative preparation

Apart from the prospect of surgery, with its special features, evidence exists to suggest that hospitalization itself is associated with physiological and psychological disturbance. De Wolf, Barrell, & Cummings, (1996) assessed 517 male long-term patients (both general and surgical) and found lower trait-anxiety scores to be associated with feelings of ease during hospitalization.

In another study of hospitalization anxiety in medical and surgical patients, by Lucente & Fleck (1972), 408 patients in four hospitals were administered the Taylor Manifest Anxiety Scale and Hospital Anxiety Scale. They found out patients' anxiety levels were highest in the University hospital (i.e. the bigger hospital). They discussed possible causes of observed differences in anxiety in relation to four aspects of the hospitalization process:

- a. The patient's antecedent environment
- b. The characteristics of the hospital
- c. The illness
- d. The person involved and they pointed out that further study of the differences between hospitals may suggest changes which would allow all hospitals to serve patients better and meet patients' needs to alley hospitalization anxiety.

Surgical patients appear to experience more disturbance than medical patients, even when their illnesses were rated less serious overall (Volicier & Burns, 1977). According to Janis (1958) pre-operative psychological state can affect physical recovery from surgery. His work suggests a curvilinear relationship between pre-operative fear and post-operative emotional disturbance, having led to the belief that a moderate degree of anxiety before an operation is associated with better outcome. However, higher levels of neuroticism and trait anxiety have been shown to correlate with poor physical recovery (Mathews & Ridgeway, 1981).

High preoperative anxiety has been associated with greater postoperative pain (Boyle & Parbrook, 1979; Jamison, Winston, Paris & Maxson, 1987; Mayande & Salmon, 1992; Taenzer, Melzack & Jeans, 1986), increased consumption of analgesics (George, Scott, Turner & Greggs, 1980; Linn, Linn & Klimas, 1988; Sime, 1976) and longer stay in hospital (Hayward, 1975; Sime, 1976).

In contrast other studies have found no evidence for these associations (pain/analgesics: Cohen & Lazarus, 1973; Johnston & Carpenter, 1980; Salmon et al,

1986; Scott, Clum & Peoples, 1983; Wallace, 1986); (hospital stay: Boeke, Jelcic & Bonke, 1992; Johnson, Leventhal & Dabbs, 1971).

Despite the conflicting findings there appears to be a general acceptance, evidenced by literature concerning preparation for surgery (Gil, 1984; Mathews & Ridgeway, 1984; Rogers & Reich, 1986; Weinman & Johnston, 1988), that postoperative outcome is influenced by psychological factors.

The evidence of transient increases in anxiety around the time of surgery has led to attempts at providing information and reassurance in the hope of reducing any adverse consequences. Majority of studies have therefore concentrated on the relationship between pre operative anxiety, attempts to reduce it and post operative variables such as length of hospital stay, pain relief and sedative requirements following surgery, and psychological reactions to surgery (Aiken & Henrichs, 1971; Flaherty & Fitzpatrick, 1978; Sime, 1976).

Methods for relieving preoperative fear and anxiety have ranged from a simple informational visit, to complex programs of relaxation, imagery and hypnosis. Patients are given information and reassurance about the surgical procedure and consequences. They are shown around the ward by nursing staff, introduced to other patients and given information about visiting arrangements and ward routine. Several investigators explored the effectiveness of psychological preparation for surgery or diagnostic testing and the use of music therapy, empathetic or therapeutic touch, reassurance, biofeedback, and sedation in the management of anxiety.

Information and reassurance has been shown to reduce the patient's anxiety and make it more manageable (Egbert, Battit, Welch, & Bartlett, 1964). Consistently favourable results of studies have been elusive with most pointing to improvement in a variety of parameters in most patients. Some have shown no improvement or negative results. The reasons for this prompt further comment.

Information provision has been the most frequently studied intervention (Anderson, 1987; Wilson, 1981). When patients were visited by their anaesthetists before surgery and given instructions, Egbert et al (1964) found that patients who were given detailed information about impending surgery required less morphine and were discharged earlier than a group that was denied such information. In this study however, any psychological benefit was confounded with instructions in post-operative breathing exercises, which may accelerate recovery in their own right (Lindeman & Van Aernam, 1971).

The rationale for providing this information is that if the patient is surprised by procedures when they occur, then unnecessary worry could be provoked by what is actually quite normal. An example of this is provided by the reaction of patients to waking up with routine intravenous drip in their arm, interpreting this to mean something had gone wrong (Ridgeway & Mathews, 1982).

Recent theoretical frameworks within which to understand the positive effects of psychological preparation have focused upon the role of information, training in coping strategies, and emotional support. But quite how such preparations actually work is less clear (Contrada, Leventhal & Anderson, 1994).

Providing written information is a relatively cheap way of preparing patients for different medical and surgical procedures. Such information falls broadly into one of the three categories.

- I. Procedural information: this information addresses special details of when and where the procedure will take place, what will happen etc. Others are the pre-medication injection, the surgical schedule, transfer to the recovery room, and the analgesic policy during recovery.
- II. Sensory information: provides patients with descriptions of the sensations and feelings that they may experience while undergoing the procedure.
- III. Behavioural information: include instructions on how the patient may make him or herself more comfortable during and after a procedure (Marteau, Kidd & Cuddeford, 1996).

Marteau et al, (1996) conducted a study on “Reducing anxiety in women referred for colposcopy using an information booklet. This study was to compare the effectiveness of two booklets in reducing anxiety. One booklet was brief, simply written to provide procedural information, behavioural instructions and outcome information. The other booklet was longer and more complex focusing largely upon procedural and outcome information.

A total of 124 women referred for their first colposcopy examination following abnormal cervical smear results indicating mild to severe dyskaryosis, were randomly allocated to one of four groups, differing in the information sent with their appointment letters (no booklet; one or other booklet; both booklets).

The results indicated that whilst receipt of either booklet increased women's knowledge about cervical abnormalities and colposcopy, women who received the simpler booklet were less anxious. Receiving the more complex booklet increased knowledge but did not reduce anxiety.

In addition, the influence of cognitive interventions such as distraction, attention focusing and positive self statements (Kaplan, Atkins & Lenhard, 1982), or multiple strategy approaches (Wells, Howard, Nowlin & Vargas, 1986) have been examined and relaxation procedures have also been employed (Levin, Malloy & Hyman, 1987). All these approaches have been found to be useful in reducing surgical anxiety.

Two recent studies have employed explicit training in the use of cognitive coping methods directed at the patient's worries rather than providing information per se (Langer, Janis & Wolfer, 1975; and Kendall et al, 1979). Patients were asked to identify those aspects of surgery or hospitalization, which concerned them, and were then encouraged to deal with these worries by viewing them in as positive a manner possible.

Surgery may be likened to the events that are possible to appraise in a number of ways, and patients are helped to attend to the positive aspects of hospitalization while countering any excessive and unfounded fears. In the only previous direct comparison of such cognitive coping methods with preparatory information prior to surgery (Langer et al, 1975) found the cognitive procedure to be superior in reducing medication requirements following surgery.

One study that has evaluated the relative efficacy of different intervention approaches was by Ridgeway & Mathews (1982). In this study sixty hysterectomy patients were randomly assigned to one of three types of psychological preparation prior to surgery, while an additional 10 patients declined psychological help. Twenty patients received information about the surgical procedure and its effects, another 20 were instructed in a cognitive coping technique; the remainder were given general information about the ward. This last group was intended to control for the non-specific effects of attention and reassurance associated with the specific preparatory methods.

By assessing the outcome of these three groups together with that of a further group who refused information it was hoped to determine the comparative effectiveness of the different methods, and to throw light on any interaction with personality or emotional response. Interventions were shown to have different effects on a number of pre and post surgical measures; notably on knowledge about hysterectomy, analgesic usage, reported days of pain after discharge, and belief in the usefulness of intervention methods.

Whereas information about surgery enhanced knowledge and usefulness ratings, cognitive coping appeared to have most effect on indices of recovery. Patients declining preparation responded badly immediately after surgery, but made a satisfactory recovery after discharge. Cognitive coping methods seem to be an effective way of managing specific worries about the operation, and it is suggested that this underlies differences in patterns of recovery following surgery.

It is however clear that a certain (fairly small) proportion of patients disclaim the need for detailed information before surgery, and despite evidence that giving preparation

across the board is not harmful (Wilson, 1981) it would not seem appropriate to force unwanted details on patients not wishing to receive them.

It is apparent from this very brief review that a number of preparation methods may be effective, without it being obvious which method is best or which patients profit most. At present there does not seem any clear basis for assigning different types of patients to different preparatory methods, although Mathews & Ridgeway (1981) suggests that patients with higher neuroticism or anxiety levels are more vulnerable in general.

In studies where alternative anxiety reducing methods have been compared with standard information (Langer et al, 1975; Kendell et al, 1979; Wilson, 1981) the alternative methods appear to be as or more effective than information alone. Apart from clinical efficacy, the mechanism responsible for any effects of psychological preparation remains unclear.

It has been suggested, Johnson (1975) that information has its effect by minimizing the mismatch between expectation and experience; provided that a patient's experience is consistent with expectation then emotional reaction remains low. Thus, in common with alternative methods, the underlying mechanism is thought to be reduction of anxiety, or other negative emotional response. If this is the case, then the different methods of preparation should be effective only to the extent that they reduce each patient's anxiety.

Music has also been frequently utilized in the medical field as a method of reducing anxiety. Mullooly, Levin & Feldman (1988) investigated the use of music for

postoperative anxiety and found that abdominal hysterectomy patients reported lower anxiety levels after listening to ten minutes of easy listening music as compared to patients who were not exposed to this intervention. The use of music was compared to the use of verbal distraction in a study by Steelman (1990), who concluded that although the methods were comparable for the reduction of anxiety, music was more effective in the reduction of blood pressure.

In a clinical study by Metivier (1993) to measure the effectiveness of music therapy, the interaction of music and a trained music therapist, in the reduction of anxiety in women undergoing stereo tactic breast biopsies, fourteen participants were divided between a control and experimental group. Those patients in the experimental group received 15-20 minutes of music therapy, including listening to recorded music while participating in either a progressive muscle relaxation exercise or a guided imagery exercise, the presence of a trained music therapist, and listening to recorded music during the biopsy.

Participants in the control group received no music therapy. Anxiety, systolic and diastolic blood pressure together with heart rate was measured. Results indicated music therapy had a largely significant effect on the reduction in perceived anxiety before the biopsy and produced a significant decrease in mean heart rate after the biopsy was completed. Music therapy appeared to have little or no effect on blood pressure, perceived anxiety after the biopsy, or heart rate before the biopsy.

Relaxation techniques have been used to assist in preparation for surgery by reducing anxiety and as a postoperative coping strategy to facilitate recovery. The results of

several studies provide evidence for the efficacy of relaxation in both these contexts. For example, Levin et al (1987) compared the effects of two relaxation techniques, a rhythmic breathing exercise and Benson's (1975) relaxation response technique, and attention-control procedure on a number of postoperative variables.

Whilst no differences were found between the groups on measures of analgesia needs and length of hospitalization, the Benson's relaxation technique group scored significantly lower than the attention-control group on a subjective measure of pain and distress.

Markland & Hardy conducted a study on "Anxiety, relaxation and anaesthesia for day-case surgery" in 1993. In this study, 21 patients about to undergo anaesthesia for day-case surgery were randomly assigned to one of the three conditions or groups. Group 1 listened to a tape-recorded relaxation session on a personal stereo system.

The tape lasted 21.5 minutes and incorporated a number of techniques including passive attention to bodily parts and instructions to slightly increase then release tension in the major muscle groups (a 'toned-down' version of Jacobson's (1938) progressive muscle relaxation technique), attention to breathing and mantra-repetition (the word 'one') as in Benson's (1975) standardized clinical meditation technique.

Group 2 constituted an attention-control condition. In addition to routine care these subjects listened to a tape recorded short story and also lasted for 21.5 minutes. Group 3 was a no-treatment control condition. These subjects underwent the standard ward procedure in these cases of simply being asked to lie on their beds and wait until it was time to go to theatre.

It was found out that the relaxation treatment significantly reduced preoperative anxiety. This reduction was reflected in physiological indicators of anxiety. Both the relaxation group and the attention-control group required significantly less time to induce anaesthesia and less of the anaesthetic agent used to maintain anaesthesia. The relaxation group also scored significantly lower than the no-treatment control group on an anaesthetist's rating of difficulty of maintenance of anaesthesia.

Whilst the relaxation treatment appeared to have no advantages over the attention-control procedure in terms of anaesthesia requirements, the latter treatment did not reduce anxiety and showed no benefit over the no-treatment control condition in terms of an anaesthetist's rating of difficulty of maintenance of anaesthesia.

Flaherty & Fitzpatrick (1978) found that surgical patients trained in relaxation reported less incision pain and distress and required less medication. Aiken & Henrichs (1971) found that a relaxation procedure significantly reduced the incidence of psychiatric reactions following cardiac surgery. Furthermore, anaesthesia time, blood transfusion requirements and degree of hypothermia were all significantly reduced in comparison to a control group. Thus surgical patients trained in relaxation had an advantage over the control group. However, there was no attempt to control for attention effects in either of these studies.

As Edelmann (1992) points out, whilst studies are generally supportive of the efficacy of relaxation for preoperative anxiety and preparation for surgery it is not entirely clear whether the effects are due solely to the relaxation treatments per se.

A number of studies have confounded relaxation with other treatments, Aiken & Henrichs, (1971) or have failed to provide adequate controls for attentional effects.

A consideration, which has received relatively little attention in the pre operative anxiety literature, is whether the timing of the introduction of relaxation interventions is important. Whilst most relaxation treatments have involved some form of training or familiarization with the techniques, they have usually not been introduced until the patients have arrived at the hospital. According to Johnston (1980), patients usually experience their highest levels of anxiety the day before admission. Domar et al (1987) argue, therefore, that in order to obtain maximum benefits, interventions need to begin well before the patient arrives at the hospital.

There are however obvious practical difficulties in delivering interventions and in ensuring treatment compliance prior to admission. In addition, even if patients do experience their highest levels of anxiety prior to hospitalization, this does not mean that interventions administered more proximally to the surgical procedure will not be of benefit.

Lamb & Strand (1980) found that single-session relaxation treatments without lengthy training periods can be effective in reducing the anxiety associated with stressful medical procedures. Experimental subjects received a brief deep muscular relaxation treatment administered via tape-recorder prior to undergoing dental treatment. State anxiety was significantly reduced throughout the duration of the visit. In contrast, a no-treatment control group showed no reduction in anxiety until after the dental



procedure was finished. The experimental group therefore went through the dental procedure well prepared as compared to the no-treatment control group.

There are difficulties in interpreting the findings of a number of studies since many of them include groups heterogeneous in terms of surgical procedures, sex, hospitals and hospital wards where dispensing medication policies may differ. One major problem is the failure to control for anaesthesia. Given that different anaesthetics, muscle relaxants and narcotics required during the course of anaesthesia promote different post-operative side effects, many of which are evaluated as outcome measures, it is not surprising that the literature concerning preoperative psychological functioning or preparation for surgery and clinical outcome are inconsistent (Abbott & Abbott, 1995).

The relative speed and quality of recovery from different anaesthetic agents has received considerable attention. An increased incidence of post-operative vomiting, nausea, headache and operative site pain has been reported following the use of different anaesthetic drugs (Cooper, 1984).

The bias inherent in earlier psychological work and the complexity of anaesthesia have been highlighted by Vogeles & Steptoe (1986). They recorded over 30 pharmacological agents (anaesthetics, analgesics, muscle relaxants and anticholinergic medication), which had been administered to patients, in various combinations, over the operative period. The effects of many of these drugs, and their interactions on autonomic responses and post-operative side effects are not fully understood.

However a study by Colt (1999) to find out the effect of music on state anxiety scores in patients undergoing Fiberoptic Bronchoscopy also revealed that relaxation music administered through headphones to patients during flexible bronchoscopy did not decrease anxiety.

In the study, sixty adult surgical patients were involved. They were randomly assigned to the control and experimental groups with each group having thirty patients. Patients during the procedure either went through relaxation music or silence that was delivered via headphones. Playing music through headphones during the procedure did not result in statistically or clinically significant reduction in anxiety when compared to the control subjects.

On the other hand, a study by, Mayande & Salmon (1992) suggests that relaxation training prior to surgery may spark a potentially harmful surge of 'stress hormones' during and after surgery. They studied adults undergoing minor operations such as ulcer repair or the removal of hemorrhoids. The day before surgery, 21 patients listened to a 15-minute tape recording that described mental strategies to reduce tension in different muscle groups. A control group of 19 patients listened to a 15-minute recording that gave background information about the hospital and its staff.

Levels of adrenaline and cortisol – two hormones associated with the body's reaction to stress and danger – increased significantly during and after surgery only among patients who listened to the relaxation tape. Yet compared with the control group, relaxation patients reported less anxiety and worry, displayed a lower average heart

rate and blood pressure, and received fewer pain-killing drugs following surgery. This apparently paradoxical effect has not been adequately explained and awaits a more cohesive picture of the complex hormonal changes related to surgical stress response.

Gender and pre operative anxiety

Several authors have noted gender to be a significant predictor to preoperative anxiety. For example, Butler, Hurley, Buchanan, Smith-Van Horne (1996) found in their research on preoperative education that female patients demonstrated higher levels of anxiety and had longer hospitalization periods than their male counterparts. This was regardless of whether subjects received the specified preadmission education booklet, or were allocated to the control group. Interestingly, no difference in patient satisfaction ratings was found. The research findings are clearly presented, but they differ from previous research findings. By addressing the reliability and the overall standard of the research, the study could be further improved and the credibility of the findings further enhanced.

Shevde and Panagopoulos (1991), in a rigorous study of 800 patients, identified that female clients consistently reported higher levels of concern on all variables measured than male patients. This difference in anxiety was questioned by the authors in relation to whether sex role socialization may have created this divergence, or whether it was the result of a difference in reporting styles (Wicklin and Forster, 1994). Further research development is recommended in order to enhance the knowledge and data available to healthcare members.

In a study of 734 patients, Kindler, Harns & Amsler (2000) concentrated on the measurement of preoperative anxiety and the identification of anaesthetic concerns.

The research demonstrated validity, reliability and rigor in most areas although there could have been more attention given to the potential for the introduction of bias. The study found that young, female patients and those with no previous experience of anaesthesia or those with negative experiences exhibited high levels of preoperative anxiety. Patients with less formal education, and those using tranquilizers also proved to be more anxious than other subjects in the study.

In contrast, Calvin and Lane (1999) found in their study of 106 orthopaedic preoperative patients that, although patients were concerned with a variety of issues, including pain management, treatment effectiveness, prognosis and activities of living, there were no significant differences found in anxiety levels among adult developmental stages, gender or illness acuity. Reliability of these findings was demonstrated through the use of a pilot study. The overall quality of the research could have been improved, along with the analysis and presentation of data, which create unnecessary statistical barriers for nurses wishing to implement research findings in practice.

Type of surgical case and preoperative anxiety

One group in particular who often do not routinely receive premedication is day-case or minor surgical patients. Cost-cutting and efficiency considerations in recent years have led to an increase in the number of patients who attend hospital for just one day to undergo minor surgical procedures (Markland & Hardy, 1993).

Today, the perioperative experience is dramatically different from the past. Forces such as cost containment and consumer activism continue to drive health care delivery in outpatient settings.

Improved technology, less invasive surgery, and advances in anaesthesia allow patients to recover more quickly and return to self-care in much less time. Consequently, patients face the stress of a hospital admission, a surgical procedure, and discharge on the same day. Patients often receive preoperative teaching via telephone, and many times, they do not meet with a nurse or anaesthesia care provider until the day of surgery (Costa, 2001).

Preoperative teaching and development of the nurse-patient relationship must occur in a very brief time period. Nurses conduct patient assessments, provide preoperative teaching, and establish relationships with patients in minutes. This limited contact often results in problems with communication and continuity and coordination of care (Hoeksema & Munski, 1997).

According to Caldwell (1991), the difficulty in meeting patients' needs in the brevity of the surgical stay often leaves patients and their significant others feeling dissatisfied with care and anxious about recovery. For the most part, family members bear the burden of delivering preoperative and postoperative care, and they have little contact with professionals who can provide teaching and support. In addition, patients often experience challenges at home that potentially prolong their recovery and increase their suffering (Otte, 1996).

Goldman et al (1988) confirms that since patients arrive at the hospital only a short time before they are scheduled for surgery, there is often not enough time for the anaesthetist to visit the patient and to prescribe an appropriate premedication. The situation is unfortunate because, though the surgical procedures may be minor, day-

case surgery is known to elicit anxiety and many anaesthetists regard day-case patients as one of the most anxious groups that they have to deal with. Auton (1968) is also of the view that there is no such thing as a minor operation to a patient.

Apart from the lack of premedication itself, unlike in-patients, day case patients have no time to settle down and get used to the hospital environment. In addition day-case patients do not usually benefit from the anaesthetist's visit during which the in-patient receives information about what to expect and reassurance about possible outcomes. All this can add up to the day case patient arriving in the anaesthetic room in a state of considerable anxiety which may be reflected, at least in the opinion of many anaesthetists, in a difficult anaesthetic induction and increased anaesthetic requirements (Markland & Hardy, 1993).

One of the principal aims of day-case anaesthesia is to have the patient sufficiently recovered to go home as soon as possible after the operation. To this end anaesthetic techniques are often used which are rather less severe than might be used with in-patients. For instance, shorter-acting and more rapidly eliminated drugs may be used and a relatively light level of anaesthesia is maintained. If, however, anxiety results in increased anaesthetic requirements, then the desired rapid recovery may not be realized (Markland & Hardy, 1993).

Frisch (1990) suggests that patients are not prepared sufficiently for discharge after ambulatory surgery or out patient surgery in terms of informational and educational support. Evidence shows that patients suffer needlessly due to inadequate preoperative preparation and lack of information regarding their postoperative course

as indicated by reports of unexpected pain, fatigue, and the inability to care for oneself. A study carried out by Frisch (1990) of patients and helpers' (i.e., those caring for patients for the first 24 hours after surgery) experiences with postoperative recovery, confirms that patients had many concerns about how to cope with anxiety, safety, and comfort issues after surgery, including the management of normal daily activities.

Kleinbeck & Hoffart (1994) examined the at-home recovery of 19 patients who underwent laparoscopic cholecystectomy procedures on an outpatient basis. Patients in this study reported feeling especially vulnerable when they prepared to leave the post anaesthesia care unit. In addition, they believed they were not prepared for discharge, had inadequate information regarding their recovery at home, and experienced a longer recovery than anticipated. All these increase the anxieties of minor surgical patients.

Goldman et al (1988) addressed the problem of anxiety and day-case anaesthesia in a study of women about to undergo day-case gynaecological operations. Subjects were randomly assigned to one of two treatment conditions. Those in the experimental group underwent a three-minute hypnotic induction during which they were given suggestions to relax and post-hypnotic instructions that they would again feel relaxed when they reached the operating theatre.

Attention-control subjects were engaged in a discussion about some aspects of their daily lives for three minutes. The results showed that the experimental subjects were significantly less anxious following treatment than the controls and required significantly less of the drug used to induce and maintain anaesthesia.

Age and preoperative anxiety

Aging is not a disease but a normal, gradual, and progressive decline that begins in the thirties when biological aging initiates cellular changes throughout the body. Physiological aging causes a linear decline in the homeostatic reserve of organ systems, especially the cardiac, pulmonary, and renal systems (Vijg & Wei, 1995).

Individuals' age at different rates, and elderly people are less alike as they grow older. Moreover, each individual's organ systems also age at different rates. These age-related changes are affected by many variables, including genetics, life style, diet, physical activity, and coexisting diseases. There is convincing evidence that a healthy lifestyle, including regular exercise, modifies, slows, or prevents the muscle and bone loss and other organ system changes often seen in the elderly (Bailes 2000).

Galazka (1988) is of the view that although aging is a normal process and not a disease, the autonomic and physiological effects produced by aging present a unique set of characteristics and challenges to providing care that are different from those found in young and middle adults. Hypothermia, dehydration, electrolyte problems, fluid shifts secondary to third-space loss, decreased renal and cardiac functions, and pharmacodynamic variations all become important clinical issues when caring for the elderly. The presence of chronic diseases that must be stabilized, in addition to carrying out the proposed surgical intervention, requires more complex medical, surgical, and nursing assessments and interventions. For example male weight increases and then declines after mid-50s. Female weight increases and then declines after mid-60s.

Severe, acute illness in the elderly often presents with vague, non-specific, or almost trivial symptoms leading to misdiagnosis and delay in treatment, even when medical attention is sought. Instead of exhibiting "classic" symptoms associated with certain diseases, elderly people may present with non-specific symptoms such as confusion, fatigue, falling episodes, anorexia, self-neglect, and new-onset incontinence.

Major causes of postoperative morbidity and mortality are failure of one or more of the three major systems (e.g., cardiovascular, pulmonary, renal). For example, impaired renal function results in fluid retention and electrolyte imbalance. Fluid retention leads to fluid overload, increased vascular volume, and increased cardiac work. Electrolyte imbalance further impairs cardiac contractility and rhythm. If fluid retention and electrolyte imbalance are not corrected, cardiac failure and pulmonary edema results, followed by system wide organ failure.

One such example of a chronic disease that may increase surgical risk is the musculoskeletal system where, osteoarthritis, osteomalacia, rheumatoid arthritis, gout, and other arthritic conditions may increase the risk of problems originating from surgical positioning (Frances, 1994).

Increased discomfort or pain may contribute to the patient's ability to comply with postoperative care (e.g., ambulating, physical therapy) and increase the risk for falls and injury postoperatively. Fractures may present with weakness to the affected limb and a change in gait (e.g. limping). The injured limb is painful, but the fracture may be difficult to differentiate from chronic pain that the patient may be experiencing with degenerative joint disease.

Morbidity and mortality are at least four times more likely in elderly people with comorbid conditions and 20 times more likely in emergency procedures (Bailes, 2000).

According to Tappen, Muzic & Kennedy (2001) although most adult patients returned to normal activities after undergoing ambulatory or out patient surgery, older adult patients typically needed assistance up to 48 hours postoperatively. Research has shown that more than 80% of older adults have multiple health problems. It must therefore be noted that older adults are likely to have significant comorbidities and functional limitations. Overall, surgery is more hazardous for elderly people, and the risks increase with advanced age.

Consideration of the practical problems of applying effective psychological interventions for the control of preoperative anxiety and postoperative pain, within the normal hospital routine led to the development of this study.

It was proposed that a cognitive behaviour therapy in form of cognitive techniques such as, thought stopping and identifying negative thoughts and refuting them, behavioural techniques such as deep breathing exercises and progressive muscle relaxation, administered prior to surgery may be an effective means of reducing anxiety and facilitating post operative recovery among elective surgical patients.

Hypotheses

1. Patients who undergo intervention before surgery will recover faster than those who do not.
2. Patients who undergo intervention before surgery will have lower anxiety levels prior to surgery than those who do not.
3. The relationship between intervention and recovery will be higher for males than for females.
4. Patients who have reported for minor surgery will be more anxious than those for major surgery.
5. Younger surgical patients between the ages of 17-35 years will benefit from the intervention than older surgical patients that is, 36-67.

Operational definitions

Anxiety: An emotional feeling usually involving fear and apprehension and associated with anticipation of a threat. For the purpose of this research, it is a feeling or reaction prior to surgery.

Surgery: The treatment of injury, deformity, and disease using operative procedures. Elective surgical cases, which include both major and minor cases, would be considered.

Cognitive Behaviour Method: This refers to a group of methods that deals with the individuals' belief system, assumptions about self, world, experience, future and general perceptions with the view to changing behaviours to effect better coping. For this research the therapy or methods would consist of cognitive techniques and

behavioural modification techniques such as deep breathing exercises and progressive muscle relaxation.

Recover: The state of feeling better after an illness or disease. Surgical patients' recovery will be measured based on post surgical recovery variables: postoperative pain, number of days spent in the hospital, pain medications taken after the surgery.

CHAPTER THREE

METHODOLOGY

Design

The research was a within group design whereby the same group of individuals were assessed on anxiety and after the intervention were assessed again on anxiety and their recovery variables: post operative pain, number of days spent in the hospital, pain medication taken after the surgery. There were two groups: the control and experimental groups. The experimental group went through the intervention that is the cognitive behaviour method while the control group did not.

Study Suite

The study was done at the surgical block of the Korle-bu Teaching hospital in Accra. The surgical block is a six-storey building. Each of the floors has its theatre day. The surgical floors 2 and 3 were chosen. This was because; both floors dealt with general surgical cases including major and minor surgery and also admit both genders. For the second floor for instance, for major surgical operations, surgery takes place on Thursdays. Minor surgeries are done on Tuesdays but this is on a two-week basis.

With the third floor, patients go to the theatre on Wednesdays for major operations. Minor surgeries are done on Thursdays but also on a two-week basis.

Korle-bu teaching hospital was chosen because it has well equipped surgical suites, highly qualified surgeons, as well as provides valid and reliable surgical outcomes. The

hospital also attends to patients of all classes, that is, the lower, middle and upper classes. It also attends to patients of all ages and educational levels. This therefore gave me a fair representation of the total population.

Participants

This study was conducted using adult surgical patients who reported at the Korle-bu teaching hospital surgical block for an elective surgery in the form of either a major or a minor surgical case. Approval for the study was sought from the department of Psychology as well as from the authorities at the Surgical Block in the hospital.

The accidental sampling technique was used due to limited time and the pressure at the hospital. Participants were approached by the researcher at the surgical block prior to the day of their operation and were given a standard explanation of the study and their request for participation was sought. Some patients declined to take part, those who agreed signed a statement of informed consent. They were reassured that their involvement would not interfere with normal peri-operative routines. In all 45 patients were approached and five decided not to take part. 40 patients therefore took part in the study.

The age range for the sample was between 17-67 years with the mean age of 38.5, while the standard deviation was 13.20. The patients were predominantly females who were 24 (60%) out of the total population of 40 patients. The male patients were 16 (40%). Majority was married 25 (62.5%) while 15 (37.5%) were single. 17 (42.5%) had no form

of education. 11 (27.5%) had Primary/Junior Secondary School education. 8 (20%) of the patients had Secondary/Technical/Vocational education while 4 (10%) had Tertiary form of education. Patients who reported for major surgery were 28 (70%) while the remaining 12 (30%) came in for minor operations.

They were randomly assigned to either the control or experimental group with each group consisting of twenty (20) patients. The breakdown of operative procedures within each group was as follows: Experimental group – 14 major surgeries [Multi nodular goiter (6), Epigastric hernia (2), Hemorrhoids (2), Cancer of the breast (2), Dilated vessel on right leg (1), Bil Fibredenona (1)] 6 minor surgeries - [Hernia repair (5), Lymphoma (1)]

Control group - 14 major surgeries [Multinodular goiter (7), Fistula in anus (2), Cancer of left breast (1), Varicose vein-left leg (1), Large umbilical hernia (1), Chronic cholecystitis (1), Probed swelling (1)] 6 minor surgeries – [Hernia repair (3), Breast lump removal (2), Lymphoma (1)].

An attempt was made by the researcher to match participants in the groups on the demographic variables: age, gender, marital status, education and type of surgical case as well as number of previous operations. Patients were also randomly assigned to the two groups. This makes the two groups comparable.

Instruments

1. Beck Anxiety Inventory was used to assess preoperative anxiety
2. Mc Gill Pain questionnaire (short form) was used to assess post-operative pain
3. Self structured questionnaire was used to elicit the fears about surgery and coping methods used by patients

The Beck Anxiety Inventory

This instrument was used to assess the general predisposition to anxiety.

The Beck Anxiety Inventory is a scale that consists of 21 items, each describing a common symptom of anxiety. The respondent is asked to rate how much he or she has been bothered by each symptom over the past week on a 4-point scale ranging from 0-3. The responses are, not at all; Mildly-it didn't bother me much; Moderately-it wasn't pleasant at times; Severely-it bothered me a lot (Appendix III).

The administration takes between 5-10 minutes. The instruction reads: below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

Reliability: The scale obtained high internal consistency and item-total correlations ranging from .30 to .71 (median = .60). A sub sample of patients (n=83) completed the BAI after 1 week, and the correlation between intake and 1 – week BAI scores was .75.



Validity: The correlations of the BAI with a set of self-report and clinician – rated scales were all significant. The correlation of the BAI with the Revised Hamilton Anxiety Rating Scale (HARS – R) and HRSD-R were .51 and .25 respectively. The correlation of the BAI and the BDI was .48.

Norms: The three normative samples of psychiatric out patients were drawn from consecutive routine evaluations at the Center for Cognitive Therapy in Philadelphia, Pennsylvania. The total sample size was 1,086. There were 456 men and 630 women.

A questionnaire was constructed that was used to assess the peculiar factors that lead to anxiety occurring before surgery and coping strategies used by patients in both groups (Appendix III). This questionnaire was based on an established one by Quiles et al (1999). This questionnaire has an internal consistency of .83 and test-retest reliability with a 7-to-10 day interval of .90. Surgical worries also correlated positively with medical fears (.60). The researcher used the questionnaire and interviewed all the respondents. This was to ensure uniformity in understanding the questions and also to enable participants who could not read or write the English language, but could speak either Ga or Akan to take part in the study.

With this questionnaire it consisted of 2 parts-part I and II. Part I dealt with demographic data as well as clinical variables, such as age, gender, residence, previous operations, type of surgical case, pulse rate and blood pressure levels. The nurse on duty measured the pulse rate and blood pressure level since this amounted to objective data. This was done for patients in both groups.

The part II section was used to elicit the peculiar factors that led to anxiety occurring before surgery and coping methods that the patients used in such situations. The questionnaire was answered on a linkert scale format. The following response choices were offered: not at all; a little worried; moderately worried; considerably worried; extremely worried. There were other open-ended questions.

The Mc Gill Pain Questionnaire

This was used to assess the postoperative self - reported pain. The MPQ contains 78 pain words. The short form of the McGill Pain Questionnaire (SF-MPQ) by Melzack (1987) consists of 15 pain words, grouped in 20 subclasses of 3 to 5 descriptive words. Within these subclasses the patient ranks the 3 to 5 pain words according to the implied pain intensity (Appendix III).

The 20 subclasses are grouped in four sections, sensory, affective, evaluative and miscellaneous, which result in 4 scores. The 4 scores add up to a sum score, the so-called Pain rating Index. The pain-rating index is the sum score primary outcome. The short form of the McGill Pain Questionnaire (SF-MPQ) would be used. These are grouped into two subclasses. They are the sensory dimension and the affective dimension. There are 11 questions referring to the sensory dimension of the pain experience and 4 related to the affective dimension. Each descriptor is ranked on a four-point intensity scale (0=none, 1=mild, 2=moderate, 3=severe).

In addition to the 78 pain words, the location of the pain is assessed with a drawing of a body with the words “external/internal” added. The face-to-face and the paper-and-pencil administration result in minor differences. The administration takes 5-25

minutes (2-5 minutes for the short form). The test-retest reliability for the 20 categories of pain descriptors calculated as Pearson correlation coefficients range from 0.29 to 0.83 with a median of 0.48. For the 4 composite subscales, the Pearson correlation coefficients are: sensory subscale 0.76, affective subscale 0.78, evaluation subscale a single category, 0.47. The coefficient for the sum score, the total pain-rating index is 0.832.

Pre test

The entire questionnaire was improved by pre-testing on a pilot study basis. The items, format, and introduction were tried out first on a group of surgical patients at the Korle-Bu Teaching hospital before their day of operation and after their operation. This was done to determine the feasibility of the administration procedures and the approximate length of time required for the completion of the questionnaire. It was also done to find out whether the questions were comprehensible and relevant to the situation.

It was found out by the researcher that some of the questions were not tapping the required information. Such as some questions dealing with the fears of surgery. These were however revised. With one of the fears concerning surgery for instance, the question was whether “patients were worried about what they would feel during anesthesia” most patients could not get the meaning of that particular fear. They were rather complaining about the long wait for the operation to commence, hence that question was changed in favour of the new observed fear. Another observation was that some of the patients who visited the hospital were illiterates and hence could not understand the questions properly. When the researcher translated the questions to them they understood and gave the appropriate responses. This was why the

researcher chose to interview all the patients. The length of the questionnaire-interview was however appropriate.

Procedure

All the forty (40) patients were seen twice before the operation and once after the operation. The first two visits were in the hospital. With the third visit, patients coming in for major surgery were seen on the ward after the operation while those for minor surgery or out-patient surgery were seen in their homes.

The first interview was mainly devoted to obtaining background information and base-line measures, although assignment to the groups were done immediately afterwards. Patients assigned to the intervention group went through the cognitive behaviour therapy. Both groups were assessed again on anxiety. The final interview was used to assess selected indicators of recovery. The researcher carried out all the interviews.

Pre-operative measures

Visit 1

Each patient coming in for an elective surgery was contacted by the researcher on the day of admission and subject to his or her agreement was asked to fill the Section A part of the questionnaire – interview. In this first part of the interview the Beck Anxiety Inventory was given that was used to assess anxiety (Beck, Epstein, Brown & Steer 1988). The nurse on duty took other physiological indicators in the form of blood pressure and pulse rate.

A brief personal history was also obtained including, patient's age, gender, number of previous operations and type of surgical case. Following this a coping questionnaire was also administered, which sought to enquire about the thoughts or fears concerning the surgery as well as coping methods used by patients to address these fears. This took place for both the experimental and control groups.

Intervention conditions

Due to the limited time frame, financial constraints as well as the pressure at the hospital the researcher could not use the Multiple Baseline Approach even though it was considered.

The patients on their first meeting with the researcher that was on their day of admission were randomly assigned to either the control or experimental groups. Each group consisted of twenty patients. These patients were assigned on weekly basis. For instance patients met during the first week were assigned to the experimental group while the following week, to the control group and so on.

Those assigned to the experimental group went through the cognitive behaviour method and they were encouraged to practice the therapy on their own. They were provided with logbooks in which to record the number of times the skills were practiced.

The cognitive behavioural intervention consists of cognitive behavioural techniques which are mental exercises that help to change the way a person thinks about a situation in order to feel better emotionally and behave in a healthier way. The

therapist works with the patient to identify the thoughts that are causing distress, and employs behavioural therapy techniques to alter the resulting behaviour.

Cognitive techniques

The cognitive techniques included

- i) **Thought stopping:** this involved concentrating on the unwanted thought and after sometime suddenly stopping and emptying the mind. The command “stop” or a loud noise is used to interrupt unpleasant thoughts.

- ii) **Identifying automatic negative thoughts and refuting them.** Automatic negative thoughts comprise the negative or pessimistic self talk (often subconscious) that occurs when we are under stress. Some common ones that occur prior to surgery are:
 - a) **Catastrophizing,** that is imagining the worst possible scenario and then acting as if that will actually happen. Example “what if I never get better?”

 - b) **Black and white thinking** also termed “all-or-nothing” thinking, there is no middle ground. Example “the surgery is either a complete success or complete failure” among others.

These negative thoughts would be identified and these thoughts refuted as in for example,

- a) “I am choosing this surgery for positive outcome”

- b) “I am looking forward to having this surgery completed and getting on with my recovery”

Behavioural techniques

The behavioural techniques involved

1) **Deep breathing exercises:** Individuals under stress such as about to have an operation often experience fast, shallow breathing. This type of breathing is known as chest breathing, and can lead to shortness of breath, increased muscle tension, and inadequate oxygenation of blood. Breathing exercises can both improve respiratory function and relieve stress and tension, (Ford – Martin, 1999). Deep breathing exercises therefore involve learning how to breathe diaphragmatically in a slow, paced fashion.

The patient was asked to sit comfortably on a chair with the feet eight inches apart, and his toes turned outwards slightly with the spine straight. The body was scanned for tension. Then one hand was placed on the abdomen and one hand on the chest. The patient was asked to inhale slowly and deeply through the nose into the abdomen to push the hand as much as feels comfortable. The chest would move only a little bit and only with the abdomen.

While smiling gently the patient was asked to inhale through the nose and exhale through the mouth making a quiet, relaxing whooshing sound like the wind as the patient blew out gently. The mouth, tongue and jaw were relaxed. Long, slow deep breaths were taken which would raise and lower the abdomen. As one became more and more relaxed, the focus was on the sound and feeling of breathing.

This was continued for about five or ten minutes at a time, once or twice a day for the time between the first interview and the day of the operation. At the end of each deep breathing session a little time was taken to once more scan the body for tension. The tension the patient felt at the conclusion of the exercise was compared with the one experienced when the exercise was begun.

After the patient had become at ease with breathing into the abdomen, the patient was encouraged to practice it whenever he or she felt like it during the day either standing or lying down. They were asked to concentrate on their abdomen moving up and down, the air moving in and out of the lungs and the feeling of relaxation that the deep breathing gave.

2) Progressive muscle relaxation: This involved a complete relaxation of the muscle groups of the body and breathing until the body was tension free. Jacobson (1938) believes that the body responds to anxiety provoking thoughts and events with muscle tension. The tense muscles, in return, increase the feeling of anxiety. Progressive muscle relaxation therefore reduces physiological tension, reduces pulse rate and blood pressure as well as decreases perspiration and respiration rates.

The process of progressive muscle relaxation is simply that of isolating one muscle group, creating tension, and then letting the muscle relax and the tension go. This procedure was used in this study. Participants were asked to sit down on comfortable chairs and close their eyes. Each muscle or muscle grouping was tensed from five to seven seconds and then was relaxed for twenty to thirty seconds. The muscle groups

are divided in a number of ways but a common method is to use the following groupings:

1. Hands, forearms and biceps
2. Head, face, throat and shoulders, including concentration on forehead, cheeks, nose, eyes, jaws, lips, tongue and neck. Considerable attention is devoted to the head, because from the emotional point of view, the most important muscles in an individual are situated in and around this region
3. Chest, stomach and lower back
4. Thighs, buttocks, calves and feet

The following expressions were used when untensing:

“Let go of the tension”

“Throw away the tension – I am feeling calm and rested”

“Relax and smooth out the muscles”

Patients were asked to focus on just one muscle group at a time. They were asked to breathe in deeply and then hold their breathe for seven seconds. They were then instructed to exhale through their mouths. This was repeated for all the muscle groupings as they were tensed and relaxed.

Firstly the patients were asked to clench their right fist, tighter and tighter, studying the tension as they did so. They kept it clenched and noticed the tension in their fist, hand and forearm. Then relaxed. They were instructed to feel the looseness in their right hand, and notice the contrast with the tension. This procedure was repeated with the right fist again, always noticing as one relaxed that, that was the opposite of

tension – relax and feel the difference. The entire procedure was repeated with their left fist, then both fists at once.

Now they were instructed to bend their elbows and tense their biceps. Tense them as hard as they could and observe the feelings of tautness. They were asked to relax and straighten out their arms. They were encouraged to let the relaxation develop and feel the difference. This was repeated with all succeeding procedures at least once.

The next muscle group to be tensed was the head where the patients were asked to wrinkle the forehead as tight as they could and then relax it. Then the eyes, then the jaw, tongue, lips in that order noticing the contrast between tension and relaxation.

Then the patients were asked to press the head back as far as it can comfortably go and observe the tension in the neck, then they were asked to shrug their shoulders.

The next groupings were the chest, stomach and lower back that were dealt with. Finally the buttocks, thighs, calves, ankles and feet were also tensed and relaxed in that manner. This procedure was repeated for each muscle group before proceeding to the next.

Relaxed postures observed were: their heads were motionless, their eyes were slightly closed with no motion of the eyeballs beneath the lids, the mouth slightly closed or slightly parted, the shoulders appeared dropped and there was no swallowing.

Patients in the experimental group, before their theatre day were expected to practice the above techniques every morning and evening on their own until the day of the



operation. They were required to record these techniques practiced in their logbooks. This in effect was a form of homework or assignment.

For the patients who reported for minor or day-case surgical operations, they attended the hospital for just one day to undergo minor surgical procedures and were discharged that day. Due to this patients were interviewed on the day of admission and those in the experimental group were given the intervention and post-test anxiety scores were taken for both groups before they went in for their operations.

Second pre-operative interview (Visit 2)

During the second visit, that is the day before the operation the researcher met the patients where the section B part of the interview – questionnaire was filled. This was the post-test measure of anxiety. The logbooks used by those in the experimental group were also checked to see if patients actually practiced the skills taught. It was thus possible to estimate the immediate impact made by the intervention, whether the intervention had the expected psychological effects prior to surgery. This took place for both groups.

Post-operative measure (Visit 3)

During the third visit, which was after the operation, a series of recovery variables were assessed. They were subjective post-operative pain, the number of days spent in the hospital, as well as post-operative medications taken.

For patients admitted for minor surgery these variables were evaluated in their homes after their discharge. Whiles those admitted for major surgery, they were evaluated on the ward. This data was collected for both groups.

The subjective post-operative pain was measured by the Mc Gill Pain questionnaire (short form). A complete count of all post-operative medications given were made, classified as antibiotics, analgesics by mouth or by injection. Sedatives or tranquilizers were also counted as analgesics provided they were given to control pain. Finally the number of days stayed in the hospital was also recorded. This constituted the section C part of the questionnaire-interview.

Method of scoring

Beck Anxiety Inventory: This scale has 21 items on common symptoms of anxiety. Each symptom has 4 columns. Each column is summed and the column totals are summed to achieve a grand score.

A grand sum between 0 and 21 indicates very low anxiety. This is usually a good thing, however it could be possible that one has learned to “mask” the symptoms commonly associated with anxiety. It could also indicate that one is detached from the self, others and the environment.

A grand sum between 22 and 35 indicates moderate anxiety. A grand sum that exceeds 36 is a potential for concern. Persistent and high anxiety is not a sign of personal weakness or failure. However it needs to be proactively treated or there could be significant impacts to the individual mentally and physically.

Mc Gill Pain questionnaire: This is a scaled checklist of 14 pain descriptors. Each symptom has 4 columns. Each column is summed and column totals are summed to obtain a grand score. In addition to the 14 pain words, the location of pain is also assessed with a drawing of the body where areas of pain are marked.

CHAPTER FOUR

RESULTS

Hypothesis one predicted that patients who undergo intervention before surgery (experimental group) will recover faster than those who do not (control group). The data relating recovery rate for experimental and control groups are shown in Table 1.

Table 1: Summary table of means, standard deviation and t-test results on rate of recovery among the experimental and control groups

Independent samples t-test	Experimental group		Control group		df	t(obs)	P
	\bar{x}	SD	\bar{x}	SD			
Recovery rate	28.9	19.62	49.25	32.70	38	3.48	< 0.05

As shown in the Table 1, the mean score for the control group was significantly higher (\bar{x} =49.25) than the experimental group (\bar{x} =28.9). The higher the mean score the slower the recovery rate. Analysis of the mean differences yielded significant results [(t (obs)=3.48, df (38), p< 0.05]. Hypothesis one was confirmed.

Hypothesis two stated that “patients who undergo intervention before surgery will have lower anxiety levels prior to surgery than those who do not”. The data for the two groups are presented in Table 2.

Table 2: Summary table of means, standard deviation and t-test results on anxiety among experimental and control groups.

Independent samples t- test	Experimental group		Control group		df	t(obs)	P
	\bar{x}	SD	\bar{x}	SD			
Anxiety	17.1	11.02	28.75	12.44	38	3.13	< 0.05

Examination of the Table 2 shows that the experimental group experienced lower levels of anxiety ($\bar{x}=17.1$) than the control group ($\bar{x}=28.75$). Note that, the higher the mean the higher the level of anxiety. A t-test analysis attained significant results [$t(\text{obs})=3.13$, $df(38)$, $p<.05$], thus supporting the second hypothesis.

In the third hypothesis, it was hypothesized that the relationship between intervention and recovery will be higher for males than for females. The data for the two groups are shown in Table 3.

Table 3: Summary table of mean, standard deviation and t-test results on intervention and recovery in relation to gender

Independent samples t-test	Males		Females		df	t(obs)	P
	\bar{x}	SD	\bar{x}	SD			
Intervention and Recovery rate	35.56	16.32	23.45	21.12	18	1.4	n.s

Results from Table 3 indicated that there was no significant link between intervention and recovery as far as male and female participants are concerned, [t(obs)=1.4, df(18), p=n.s]. In other words no significant difference exists between males and females as far as their benefiting from the intervention is concerned. Hypothesis three was not confirmed.

With hypothesis four the anxiety levels of patients for both minor and major surgical operations was evaluated. The data for the two groups on their levels of anxiety are presented in Table 4.

Table 4: Summary table of mean, standard deviation and t-test results on anxiety among minor and major surgical patients.

Independent sample t-test	Minor		Major		df	t(obs)	P
	\bar{x}	SD	\bar{x}	SD			
Anxiety	17.58	11.86	30.43	35.17	38	1.23	n.s

As shown in Table 4, a t-test analysis of the data for the fourth hypothesis indicates that, no significant difference exists between the anxiety levels of patients who reported for minor and those who reported for major surgery, [t(obs)=1.23, df(38), p=n.s]. Therefore anxiety levels for minor surgical patients and major surgical patients were comparatively the same. Hypothesis four which stated, “patients who have reported for minor surgery will be more anxious than those for major surgery” was not supported.

In hypothesis five, benefiting from the intervention by younger and older patients was assessed. The data relating intervention to age is shown in Table 5.

Table 5: Summary table of mean, standard deviation and t-test results on benefiting from intervention among younger and older patients.

Independent sample t-test	Younger		Older		df	t(obs)	P
	\bar{x}	SD	\bar{x}	SD			
Intervention and recovery rate	17.22	12.11	17	10.65	18	0.04	n.s

As shown in Table 5 analysis of the mean differences reveals that, no significant difference exists between younger and older patients as far as their benefiting from the intervention is concerned, [$t(\text{obs})=0.04$, $df(18)$, $p=n.s$]. The hypothesis five that stated “younger surgical patients between the ages of 17-35 years will benefit from the intervention than older surgical patients that is 36-67” was not supported by the data collected.

Anxiety levels for the control group was also assessed. The data for testing the anxiety levels of the control group for the pre and post conditions is seen in Table 6.

Table 6: Summary table of the mean, standard deviation, and t-test results of the pre and post anxiety scores of the control group.

Independent sample t-test	Pre-test condition		Post-test condition		df	t(obs)	P
	\bar{x}	SD	\bar{x}	SD			
Anxiety	22.9	14.4	28.9	12.44	38	1.39	n.s

As revealed in the Table 6, a t-test analysis of the data for testing the anxiety scores of the control group shows that no significant difference exists between the two conditions for this group, [$t(\text{obs})=1.39$, $(df)38$, $p=n.s$] Anxiety scores remained the same for both pre and post conditions.

Blood pressure was also evaluated for both the experimental and control groups for the pre and post conditions. The data for testing the blood pressure of the experimental and control groups for both conditions is shown in Table 7.

Table7: Mean and standard deviation of the systolic and diastolic blood pressure of both the experimental and control group.

Blood pressure	Experimental				Control			
	Pre		Post		Pre		Post	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
Systolic	129.5	14.68	125.5	9.99	129.5	16.05	133.5	15.31
Diastolic	79.5	8.87	77.0	7.33	81.5	8.13	84	6.81

As shown in the Table 7 the mean rates for the systolic blood pressure for the pre and post condition as well as the diastolic blood pressure for the pre and post condition for the experimental group were (129.5) (125.5) (79.5) (77.0) respectively. That of the control group were (129.5) (133.5) (81.5) (84.0) respectively. These means were subjected to analysis using the two-way analyses of variance. Results from this analysis are presented in the table 8 and 9 below.

Table 8: 2 WAY ANALYSES OF VARIANCE: SUMMARY TABLE ON SYSTOLIC BLOOD PRESSURE

Source of Variance (SV)	Sum of Squares (SS)	Degree of Freedom (df)	Mean of Squares (MS)	<u>F</u>	<u>P</u>
Rows (Pre and Post conditions)	151.25	1	151.25	0.46	n.s
Column (Groups)	661.25	1	661.25	2.0	n.s
Interaction	101.25	1	101.25	0.31	n.s
Error	251255	76	330.99	-	
Total	26068.75	79	-	-	-

Results in table 8 indicate that no significant difference exists between the systolic blood pressure of the participants in both the control and experimental groups at both the pre and post test conditions.

TABLE 9: 2 WAY ANALYSES OF VARIANCE: SUMMARY TABLE ON DIASTOLIC BLOOD PRESSURE

Source of Variance (SV)	Sum of Squares (SS)	Degree of Freedom (df)	Mean of Squares (MS)	<u>F</u>	<u>P</u>
Rows (Pre and Post conditions)	20	1	20	0.13	n.s
Column (Groups)	845	1	845	5.60	< 0.05
Interaction	45	1	45	0.30	n.s
Error	12070	76	150.82	-	-
Total	12980	79	-	-	-

Results in the table 9 above shows no significant difference exists between diastolic blood pressure for the pre and post conditions. However a significant difference exists between the diastolic blood pressure for the control group and the experimental group. The mean diastolic blood pressure for the control group was higher than that of the experimental group (refer to table 7).

Pulse rate for both experimental and control groups on the pre and post conditions were evaluated. The data for testing the pulse rate of the experimental and control groups is shown in Table 10.

Table 10: Mean and standard deviation of pulse rate for the pre and post conditions of both groups

Variable	Experimental				Control			
	Pre test		Post test		Pre test		Post test	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
Pulse rate	73.7	14.97	76.7	7.93	80.8	8.46	80.85	6.93

Examination of Table 10 reveals that the experimental group experienced pulse rate increases from the pre ($\bar{x}=73.7$) to the post ($\bar{x}=76.7$) conditions than the control group pre (80.8) and post (80.85) conditions. This shows that pulse rate increased after the intervention for the group that went through the therapy, since a higher mean indicated higher pulse rate.

To sum up, there were five hypotheses predicted and out of this, the first two hypotheses were supported, while the remaining three were not supported.

As predicted with the first hypothesis those patients who underwent the intervention before surgery recovered faster than those who did not. With the second hypothesis patients who went through the intervention before surgery had lower anxiety levels than those who did not.

The third hypothesis in which the relationship between intervention and recovery was predicted to be higher for males than for females was disconfirmed. Hypothesis four in which anxiety was predicted to be higher for the minor surgical patients than major surgical patients was also not supported. Finally with the fifth hypothesis whereby, younger surgical patients were more likely to benefit from the intervention than older patients was not supported.

Further analysis revealed that anxiety levels for the pre and post conditions for the control group was found out to be the same. With the blood pressure levels however, there was no difference in the pre and post conditions for both groups when considering the systolic blood pressure. With the diastolic blood pressure, there was also no difference in the conditions for the two groups, however the mean diastolic blood pressure was higher for the control group than the experimental group. Pulse rate levels rather increased for the experimental group from the pre to the post levels while that of the control group remained the same.

CHAPTER FIVE

DISCUSSION

The purpose of this study was to determine the efficacy of cognitive behaviour therapy on pre operative anxiety and post surgical recovery.

The most important finding was that the experimental group who went through the intervention recovered faster as opposed to the control group who did not. Another finding from this study was that anxiety levels for the experimental group was reduced prior to surgery when compared to the control group. However there was no effect on gender and the intervention used in this study.

Markland & Hardy (1993) confirm that one group who often do not routinely receive medication are day case patients. Patients do not have enough time to settle into the hospital environment hence increasing anxiety. In this study, both minor and major surgical patients had the same level of anxiety. Both younger and older surgical patients also benefited equally from the intervention.

Hypothesis one which stated that patients who undergo intervention before surgery will recover faster than those who did not was supported. Results from hypothesis one (Table 1) indicated that there was a significant difference between the two groups. Combined with earlier studies by Langer et al (1975) and Kendell et al (1979) the present results provide fairly powerful evidence that cognitive behavioural techniques are an effective way of promoting recovery from surgery.

This was supported by Levin et al (1987) who compared the effects of two relaxation techniques and attention control procedure on a number of postoperative variables and found out that the relaxation technique group scored significantly lower than the attention control group on a subjective measure of pain and distress.

Considering first the immediate psychological impact of preparation, the present results demonstrate that the cognitive behavioural intervention group scored lower marks on anxiety and also scored lower marks on the pain scale indicating lower levels of pain.

The second hypothesis was that patients who undergo intervention before surgery will have lower anxiety levels prior to surgery than those who did not. This was confirmed since there was a reduction in anxiety prior to surgery for those who went through the therapy that is the experimental group (Table 2). This finding is in line with Markland & Hardy (1993) whose study involved anxiety, relaxation and anaesthesia for day-case patients. Results indicated that the relaxation treatment group had a significant reduction in pre operative anxiety when compared to the other two groups, attention-control and the control group.

However the results of this study are not consistent with those of Colt (1999) who demonstrated that relaxation music administered through headphones to patients during flexible bronchoscopy does not decrease procedure related state anxiety.

Most surgical patients reported moderate to severe levels of anxiety before the operation. These could be envisaged in the scale measuring the fears of surgery

(Appendix IV). Most patients reported fears “from not awakening from anaesthesia.” They were afraid of death. One patient when asked this question in an interview by the researcher retorted “I refuse this in Jesus name”. This goes on to show the intensity of fear in relation to this particular worry. This therefore confirms the research carried out by Reeves (1999) concerning fears about surgery and this was found out to be one of the most prominent fears.

The next issue of great concern to patients was “loosening control or appearing foolish” and “not being able to do the same things as before”. Considerable number of patients saw anxiety or fear to be related to children and were very embarrassed by the way they were exhibiting anxiety. They saw general restlessness, agitation, trembling, pacing about to be an issue of them being out of control. With the other fear, a lot of patients when being interviewed were bitterly complaining of them, having friends who had gone through surgery and could not do the same things as before. These surgery ‘war stories’ and experiences create anxiety.

The least fear recorded was “waking up during the operation” which most of them said they had not even thought about. This was followed by “the operation leaving scars”. According to the patients they were concerned about their predicament being solved and cared less if they obtained scars through this. From the interview/questionnaire conducted most patients reported that they coped with these anxieties through prayer as well as with advice from relatives and friends.

When considering the systolic blood pressure level, there was no difference in the pre and post conditions for the experimental and control groups. However the diastolic

blood pressure showed that, there was also no difference between the conditions of both groups. The mean diastolic blood pressure was however higher for the control group than the experimental group (Table 9). Interestingly, the mean pulse rate levels for patients in the experimental group increased (Table 10).

The physiological or immunological function therefore presented a different picture. These results could be due to a lot of factors, since it seems reasonable to conclude that psychological preparation can have both subjective and behavioural effects. On the other hand, the control group (as evidenced from Table 9) had their mean diastolic blood pressure higher than the experimental group, with their pulse rates remaining comparatively the same for both conditions (Table 10). However anxiety remained comparatively the same for both pre and post conditions since there was no difference when taking both conditions into consideration (Table 6).

In a study by Metivier (1993) that dealt with using music therapy in the reduction of pre operative anxiety in women undergoing Stereo tactic breast biopsies, similar results were found. Music therapy appeared to have little or no effect on blood pressure, perceived anxiety after the biopsy, or heart rate before the biopsy.

Giving patients more information about the surgery could have raised the alarm and apparently they might have overestimated how helpful the information was. For some patients the thought of them being in the hospital alone caused their fear and not forgetting the sight of hospital injections. No matter, the amount of therapy those patients went through it could not help them, hence they appeared calm but this could not be reflected in the objective data collected that is the physiological indicators.

If the effect were thought to be mediated by emotional state, and particularly by anxiety then it would be necessary to suppose that the cognitive behaviour method helped in reducing anxiety. Psychological influences might be confined to self-report measures (e.g. via suggestion or demand effects), or could lead to changes in recovery-promoting behaviour (deep-breathing, exercises, mobilization, etc), or might act directly on physiological or immunological function.

If anxiety, for example, has a direct effect on physical function involved in recovery (e.g. via autonomic arousal), then it should not make much difference what the particular focus of that anxiety might be; worry about the operation having similar autonomic effects to worry about anything else.

If on the other hand, the patients' anxiety influences recovery via relevant behavioural consequences (such as showing excessive pain, avoiding activity, etc) then it is more understandable that the exact form of patient worry might be important. Worry about pain for example could lead the patient to restrict his activity and thus retard recovery.

The third hypothesis (Table 3) that looked at the relationship between gender and intervention was not supported. Results indicated that gender did not have any significant effect on intervention. As far as their benefiting from the intervention is concerned, there was no difference between males and females. This goes to disconfirm the research carried out by Butler et al (1996), which demonstrated that whether subjects received intervention or not female patients demonstrated higher levels of anxiety and had longer hospitalization periods than their male counterparts.

In the same research however, there was no difference in satisfaction ratings. This could be that patients of both genders had come to accept that anxiety before surgery was a normal occurrence and needed to do something to help themselves.

With day case patients, preoperative teaching and development of the nurse-patient relationship must occur in a very brief time period. They could also miss out on some of the information and pre surgery visits that an in-patient in the hospital would get. This creates anxiety and tension in minor surgical patients. In-patients are however known to receive information about the surgical procedure and possibly reassurance from nurses and doctors thereby reducing their fears (Markland & Hardy 1993).

In this particular study this was not reflected. Minor surgical patients were seen to have the same anxiety levels as major patients. A look at (Table 4) shows that there was no significant difference between the two groups in terms of their anxiety levels. Hence the fourth hypothesis, which stated that patients who have reported for minor surgery will be more anxious than those for major surgery was not supported.

This could possibly be due to the fact that the minor surgical patients faced the problem of not having much interaction before the procedure hence the rate in anxiety. Also most of the major cases the researcher dealt with were severe ones hence the anxiety of these patients. However some minor patients when followed up to their homes by the researcher complained of not having adequate information concerning their postoperative recovery. Hence in line with Otte (1996) patients were experiencing challenges at home that potentially prolonged their recovery and increased their suffering.

This supports researches carried out on post surgical recovery of day case patients where it was found that most patients had unexpected problems relating concerns about how to cope with anxiety, safety, and comfort issues after surgery, including the management of normal daily activities (Frisch, 1990). Nurses are therefore encouraged to follow up these patients since they have their own peculiar problems after discharge.

Age and the intervention involved in this study also showed that as far as the intervention was concerned, both younger and older patients benefited equally. This was because the fifth hypothesis that stated that younger surgical patients between the ages of 17-35 years will benefit from the intervention than older surgical patients that is 36-67 was not supported as can be seen from (Table 5).

According to Bailes (2000) most 65-year-olds are healthy and can tolerate major surgical intervention without significant morbidity and mortality unless there are preexisting co morbid conditions. More chronic conditions develop as people age into their seventies and beyond. This age group undergoes approximately 20% of all surgical procedures and experiences more preoperative morbidity and mortality.

In recent years however, theories have been developed to explain how and why we age. One set of theories proposes that age is predetermined; the other assumes that aging occurs randomly, and its effects accumulate over time. Aging is therefore not a disease but a normal, gradual, and progressive decline that begin in the thirties when biological aging initiates cellular changes throughout the body (Vijg & Wei, 1995).

Even with these increased risk factors, postoperative mortality is fairly low in the elderly population because more research has been done on aging and there are better anesthetic, surgical, and monitoring techniques. This disconfirms Tappen et al (2001) report, which showed that older patients typically needed assistance up to 48 hours

post operatively after undergoing an ambulatory surgery when compared with adult patients.

Other findings showed that there was a reduction in the number of antibiotics and analgesics taken by the experimental group when compared with the control group even though it was not that significant. Frequency tables were conducted on this data (Appendix V).

Taking the number of patients in the experimental group who took between one to two antibiotics after the operation, 17 patients (85%) as compared to 18 patients (90%) in the control group took this. With patients who took more than three different analgesics/tranquilizers, 10 (50%) were in the experimental group as compared to 12(60%) in the control group. 2(10%) in the experimental group took three different analgesics while 4(20%) in the control group took this.

The number of day's patients spent in the hospital after the operation also produced the following results. (Appendix V). For between 5-6 days, 9(45%) from the experimental group while 4(20%) from the control group spent the above days in hospital. More than six days spent in hospital 5(25%) of patients from the experimental group while 10(50%) from the control group spent more than six days. Clearly it can be seen that the experimental group spent the least number of days in hospital after the operation. Due to minor operations carried out on 12 patients they returned home the same day.

These results are not consistent with a study by Ridgeway and Mathews (1982) who came up with the findings that, there was no difference in the number of antibiotics given and similarly there was no difference in length of hospital stay when comparing three different groups with different psychological preparations before surgery. The

results also does not support the study by Levin et al (1987) who did not report any differences between groups on measures of analgesia needs and length of hospitalization. This is because, the number of analgesics taken was similar but there was a difference when considering the number of days spent by patients in the hospital after the operation.

Depression was another stress response that the researcher noticed among the patients. Most patients had difficulty in thinking or concentrating and appeared confused. Most of them had feelings of worthlessness, hopelessness and negativity about their operations. This led them to become consumed by thoughts of death. This could be seen by the way patients were afraid of not awakening from anaesthesia. Some patients also had insomnia where they could not have enough rest and therefore appeared tired. All this goes a long way to affect surgical outcome. Reduction in anxiety/depression by the researcher was therefore desirable in limiting stress response to surgery.

It is also important to recognize the perception of cognitive behaviour therapy voiced out by patients and the medical staff. Many participants commented that they felt the therapy had been beneficial to them and several asked if the researcher (therapist) would be available at other times or for other procedures.

When the therapist met them the day before the operation many were so excited they partook in the research and could be found practicing the relaxation technique with so much joy and ease. Some patients decided to share what they had learnt with their families and friends at home.

The minor surgical patients who were followed up to their homes by the researcher could not help but express their joy and gratitude. Most patients who were visited involved their family members in that on the specified days that they were visited, the

researcher found the patients seated with their families and friends all waiting for the therapist. In such a situation, the researcher made them aware that it was expedient that only the patient be interviewed. They were all thankful and expressed their appreciation for the effort made by the researcher at following these patients home to find out how they were faring.

The doctors and nurses on duty frequently showed interest in the therapy and this study, asking about the therapy techniques, sharing suggestions, and inquiring about the study results. Many staff and members also mentioned that they would appreciate having an anxiety reducing cognitive behavioural therapy for themselves especially since they are easily stressed out.

SUMMARY AND CONCLUSIONS

The cognitive behavioural method which involved cognitive as well as behavioural skills was used as an anxiety reducing intervention with its' effects being measured using post surgical recovery variables. The study was carried out on forty (40) elective surgical patients of both genders at the Surgical Block of the Korle-Bu teaching hospital in Accra.

Due to the limited time frame, the accidental sampling technique was used. Each patient was seen twice before the operation and once after the surgery. With the third visit, patients who reported for major surgery were seen in the ward while those for minor surgery were followed up in their homes.

The first meeting, which was conducted on the day of admission, was used to obtain background information as well as baseline measures of anxiety. The second visit that was the day before the surgery was used to obtain posttest measurements on

anxiety, while the third visit, which was after the operation, was done to collect data on a number of post surgical recovery variables.

The findings revealed a significant difference between the experimental and control groups on the rate of recovery. Those who went through the cognitive behaviour method recovered faster when compared to those who did not. Also when comparing the level of anxiety of both groups prior to their operations, a significant difference was found between these two groups. The experimental group who went through the intervention had their anxiety levels reduced before their surgical procedure compared to the control group.

In conclusion, this study provides preliminary evidence that the cognitive behaviour method that involved cognitive techniques, together with breathing-in techniques and progressive muscle relaxation seems to be flexible enough to be generally applicable to majority of surgical patients.

SUGGESTIONS AND RECOMMENDATIONS

As stated earlier, studies show that patients perceive the day of surgery as the biggest and most threatening day in their lives (Uddin et al, 2002). To Johnston (1980), patients normally experience their highest levels of anxiety the day before admission. This therefore does not underscore the level to which most surgical patients are anxious. It is important to note that from this study psychological preparation prior to surgery was found to be very beneficial in reducing anxiety and aiding recovery.

With this knowledge, health professionals may be able to implement this type of therapy intervention before any surgical procedure in order to reduce anxiety prior to and possibly during the procedure.

It is also recommended that practitioners know of the cognitive behaviour therapy's use and validity as well as know the existence of trained clinical psychologists who can offer this kind of therapy. Nurses, doctors and technicians should be aware of appropriate instances in which to consult or refer a patient to a clinical psychologist.

It is also suggested that, future research should examine whether even simpler interventions, such as talking with patients, encouraging them to listen to radio, or otherwise creating distractions might have similar results. Also clinical psychologists working in the clinical or surgical settings can improve upon this particular research by combining the cognitive behaviour method with other behavioural instructions that would go a long way to aid in the recovery of surgical patients.

Future researches could also consider working with a more homogenous group, for instance working with only minor surgical patients with one particular surgical case. The development and evaluations of such combinations could usefully be the subject of future research.

Ideally it is recommended that a clinical psychologist should be available in any facility where surgical procedures are performed.

LIMITATIONS

The limitation to this study was the use of a heterogeneous sample in terms of surgical procedures, which went a long way to affect the results of this study. This is because different surgical operations produced varied results, which made generalization a bit difficult.

Another limitation was that the waiting room was used as a therapeutic room for the minor surgical patients while the hospital wards was used for the major surgical

patients. This was obviously not conducive for a relaxation procedure since we needed a quiet and serene environment.

Also the chairs used for the relaxation procedures were not comfortable since they were chairs used by patients in the wards and some major surgical patients preferred practicing the progressive muscle relaxation while lying on their beds.

Finally the tests used have not been used consistently on the Ghanaian population, however a pre test was conducted that helped to determine whether the test could be used in Ghana. The necessary amendments were therefore done.

On the whole, the cognitive behavioural therapy appeared useful and beneficial to the reduction of anxiety before surgery and aiding in recovery therefore this treatment may be a useful adjunct to the routine care of elective surgical patients.

REFERENCES

- Abbott, J. & Abbott, P. (1995). Psychological and cardiovascular predictors of anaesthesia induction, operative and post-operative complications in minor gynaecological surgery. *British Journal of Clinical Psychology*, 34, 613-625.
- Aiken, L. H. & Henrichs, T. F. (1971). Systematic relaxation as a nursing intervention technique with open-heart surgery patients. *Nursing Research*, 20, 212-217.
- Aldridge, K. (1993). The use of Music to relieve preoperational anxiety in children attending day surgery. *The Australian Journal of Music therapy*, 4, 19-35.
- Alloy, L.B., Acocella, J., Bootzin R.R. (1996). *Abnormal Psychology: Current Perspectives*. McGraw-Hill Inc., U.S.A.
- American Psychiatric Association (1994). *Diagnostic and Statistical manual of mental Disorders*. (4th edition). Washington D.C. U.S.A.
- Anand, K. (1986). The stress response to surgical trauma: from physiological basis to therapeutic implications. *Programmes Food and Nutrition Science*, 10, 67-132.
- Anderson, E. A. (1987). Preoperative preparation for cardiac surgery facilitates recovery, reduces psychological distress, and reduces the influence of acute post-operative hypertension: *Journal of Consulting and Clinical psychology*, 55, 513-520
- Anderson, K.O. & Masur, F.T. (1983). Psychological preparation for invasive medical and dental procedures. *Journal of Behaviour Medicine*, 6, 1-40.
- Andrew, J.M. (1970). Recovery from surgery, with and without preparation, for three coping styles. *Journal of Personality and Social psychology*, 15, 233-336.
- Auerbach, S.M. & Kilmann, P.R. (1977). Crises intervention: A review of research. *Psychological Bulletin*, 84, 1189-1217.
- Auton N. (1968). *Pastoral Care in Hospitals*. SPCK, London.
- Bailes, B.K. (2000). Perioperative care of the elderly surgical patient. *AORN J*. Gale Group.
- Barlow, D.H. (1988). *Anxiety and its disorders: The nature and treatment of anxiety and panic*. New York: Guilford Press.
- Beck, A.T. (1963). Thinking and depression: I. Idiosyncratic content and cognitive distortion. *Archives of General Psychiatry*, 9, 324-333.
- Beck, A.T. (1984). Cognitive approaches to stress. In R. Woolfolk & P. Lehrer (Eds.), *Principles and practice of stress management*. New York: Guilford.

- Beck, A.T. (1987). *Anxiety inventory*. Philadelphia: Center for Cognitive Therapy.
- Beck, A.T., Epstein, N., Brown, G & Steer, R.A. (1988). An inventory for measuring clinical anxiety. Psychometric properties. *Journal of Consulting and clinical Psychology*, 56(6) 893-897.
- Benson, H. (1975). *The Relaxation Response*. New York: Morrow
- Boeke, S., Jelacic, M. & Bonke, B. (1992). Pre-operative anxiety variables as possible predictors of post-operative stay in hospital. *British Journal of Clinical Psychology*, 31, 366-368.
- Boyle, P. & Pabrook, G.D. (1979). Personality and postoperative factors. *British Journal of Anaesthesia*, 51, 259-264.
- Butler, G., Hurley, C., Buchanan, K., Smith-Van Horne, J. (1996). Pre hospital education: effectiveness with total hip replacement surgery patients. *Patient Education and Counseling*, 29, (1), 18997.
- Caldwell, L.M. (1991). Surgical outpatient concerns. What every perioperative nurse should know. *AORN Journal*, 761-767.
- Calvin, R. & Lane, P. (1999). Preoperative uncertainty and state anxiety of orthopaedic surgical patients. *Orthopaedic Nursing*, 18, (6), 616.
- Cochran R. (1984). Psychological preparation of patients for surgical procedures. *Patient Educ. Couns.* 5: 153-158.
- Cohen, F., & Lazarus, R.S. (1973). Active coping processes, coping dispositions and recovery from surgery. *Psychosomatic Medicine*, 35, 375-389.
- Colt H.G. (1999). Effect of Music on State Anxiety Scores in Patients Undergoing Fiberoptic Bronchoscopy. American College of Chest Physicians. *AORN J.* Gale Group.
- Contrada, R.J., Leventhal, E.A. & Anderson, J.R. (1994). Psychological preparation for surgery: Marshalling individual and social resources to optimize self-regulation. *International Review of Health Psychology*, 3, 219-266
- Corah, N. L., Gale, E. N. & Illig, S. J. (1979 a). Psychological stress reduction during dental procedures. *Journal of Dental Research*, 488, 196.
- Cooper, G.M. (1984). Recovery from anaesthesia. *Clinics in Anaesthesiology*, 2, 145-162.
- Costa, M.J. (2001). The lived perioperative experience of ambulatory surgery patient. *AORN Journal*. Gale Group.
- Cowan, D.S. (1991). Music Therapy in the Surgical Area. *Music Therapy perspectives*, 9, 42-45.

- Davis, M., Eshelman, E.R., McKay, M. (1988). *The relaxation and Stress Reduction Workbook*. New Harbinger Publications, Inc. U.S.A.
- Dawson, Dawn P. (eds) (1996). *Magill's Medical Guide: Health and Illness Supplement*. Pasadena, CA: Salem Press Inc.
- De Long, R.D. (1970). *Individual differences in patterns of anxiety arousal, stress-relevant information and recovery from surgery*. Doctoral dissertation, University of California, Los Angeles.
- Descartes, R. (1991). *Philosophical writings of Descartes: Vol. 3: The Correspondence*.
- De Wolfe, A.S., Barrell, R.P., & Cummings, J.W. (1996). Patient variables in emotional response to hospitalization for physical illness. *Journal of Consulting psychology*, 30, 68-72.
- Domar, A.D., Noc, J.M. & Benson, H. (1987). The preoperative use of the relaxation response with ambulatory surgery patients. *Journal of Human Stress*, 13, 101-107.
- Durand, M.V. & Barlow, D.H. (1997). *Abnormal Psychology: An introduction*. Brookes/Cole Publishing Company. U.S.A.
- Edelmann, R.J. (1992). *Anxiety theory, Research and Intervention in Clinical and Health Psychology*: Chichester, Wiley
- Egbert, L.D., Battit, G.E., Welch, C. E. & Bartlett, M. K. (1964). Reduction of post-operative pain by encouragement and instruction of patients: A study of doctor-patient rapport. *New England Journal of Medicine*, 270, 823-827.
- Ellis, A. (1962). *Reason and emotion in psychotherapy*. New York: Lyle Stuart.
- Ellis F., Humphrey D. (1982). Clinical aspects of endocrine and metabolic changes relating to anaesthesia and surgery. In: Watkins J., Salo M. eds. *Trauma, Stress and Immunity in Anaesthesia and Surgery*. Butterworth, London.
- Enright, S. (1997). Cognitive Behaviour therapy. *British Medical Journal*, 314, 7097, 1811-1816.
- Flaherty, G.C. & Fitzpatrick, J.J. (1978). Relaxation techniques to increase comfort level of postoperative patients: A preliminary study. *Nursing Research*, 27, 352-355
- Ford-Martin, P.A. (1999). *Gale Encyclopedia of Medicine*. Gale Research,
- Frances, J. (1994). Preoperative management of the older patient. *Principles of Geriatric medicine and Gerontology*, third edition. Hazzard, W.R., eds (New York: Mc Graw Hill) 227-286, Sloane, Normal ageing, 14-27.
- Freeman, A., & Dattilio, M.F. (1992). *Comprehensive casebook of Cognitive therapy*. Plenum Publishing Corporation, U.S.A.

- Frisch, S.R. (1990). Ambulatory surgery. A study of patients and helpers' experiences. *AORN Journal*, 52, 1000-1009.
- Fuller, S. S., Endress, M.P. & Johnson, J.E. (1978). The effects of cognitive and behavioral control on coping with an aversive health examination. *Journal of Human stress*, 4, 18-25.
- Galazka, S.S. (1988). Preoperative evaluation of elderly surgical patient. *Journal of Family Practice*, 27, 622-632.
- Garbee, D.D. & Gentry, J.A. (2001). Coping with the stress of surgery, (patient strategies). *AORN Journal*. Gale Group.
- Gelder, M. (1997). The Future of Behavior Therapy. *Journal of Psychotherapy Practice*. 6, no. 4, 285-93.
- George, J.M., Scott, D.S., Turner S.P. & Greggs, J.M. (1980). The effects of psychological factors and physical trauma on recovery from oral surgery. *Journal of Behavior Medicine*, 3, 291-310.
- Gil, G.M. (1984). Coping effectively with invasive medical procedures: A descriptive model. *Clinical Psychology Review*, 4, 339-362.
- Goldmann, L., Ogg, T. W. & Levey, A.B. (1988). Hypnosis and day-case anaesthesia. *Anaesthesia* 43, 466-469
- Guerra F., Aldrete, J. (1980). *Emotional and Psychological Responses to Anaesthesia and Surgery*, Gune and Stratton, New York.
- Halgin, R.P & Whitbourne, S.K. (2000). *Abnormal Psychology: Clinical perspectives on psychological disorders*. (3rd Edition). McGraw-Hill Companies. U.S.A.
- Hayward, J. (1975). Information-A prescription against pain. *The study of Nursing Care Projects Reports*, series 2, no. 5. London: The Royal College of Nursing.
- Heitz, L., Symreng, T. & Scamman, F. (1992). Effect of music therapy in the post anaesthesia care unit (A nursing intervention). *Journal of Post Anaesthesia Nursing*, 7, 22-31.
- Hinojosa, R.J. (1995). A Research Critique Introspective Music Therapy: Effects on Anxiety, Blood Pressure. *Plastic Surgical Nursing*, 15, 228-231.
- Hoeksema, J. & Munski, J. (1997). Development of patient-centered pre procedure program. *AORN Journal*, 65, 388-395.
- Horne, D.J, Vatmanidis, P., Careri, A. (1994). Preparing patients for invasive medical and surgical procedures. 1: Adding behavioural and cognitive interventions. *Behaviour Medicine*, 20, 5-13.
- Jacobson, E. (1938). *Progressive Relaxation*. Chicago: Chicago University Press.

Jamison, R.N., Winston, C.V., Parris, W. & Maxson, W.S. (1987). Psychological factors influencing recovery from out patient surgery. *Behavior Research and Therapy*, 25, 31-37.

Janis, I.L. (1958). *Psychological Stress: Psychoanalytic and Behavioral Studies of Surgical patients*. New York: Wiley.

Johnson, J.E. (1975). Stress reduction through sensation information. In I.G. Sarason & C.D. Spielberger (eds), *Stress and Anxiety*, vol.2. Washington: Hemisphere.

Johnson, J.E., Leventhal, H. and Dabbs, J.M. (1971). Contribution of emotional and instrumental responses in adaptation to surgery. *Journal of Personality and Social Psychology*, 20, 55-64.

Johnston, M. (1976). Communication of patients' feeling in hospital. In Bennett M. Ed. *Communication Between Doctors and patients*. Oxford University press, London.

Johnston, M. (1980). Anxiety in Surgical patients. *Psychological Medicine*, 10, 145-152

Johnston, M. (1982). Recognition of patients' worries by nurses and by other patients. *British Journal of Clinical Psychology*, 21, 255-261.

Johnston, M. and Carpenter, L. (1980). Relationship between pre-operative and post-operative state. *Psychological Medicine*, 10, 316-367.

Johnston, M. & Vogeles, C. (1993). Benefits of psychological preparation for surgery: A meta-analysis. *Annals of Behavioral Medicine*, 15, 245-256

Johnstone, M. (1971). The effects of oral sedatives on the vaso-constructive response to fear. *British Journal of Anaesthesia*, 43, 380-384.

Jouanna, J. (1999). *Hippocrates*. Baltimore, M.D. Johns Hopkins University Press.

Kaplan, R.M., Atkins, C.J. & Lenhard, L. (1982). Coping with stressful sigmoidoscopy: Evaluation of cognitive and relaxation procedures. *Journal of Behavioural Medicine*, 5, 67-82.

Kaufman I. (1990). The endocrine response to surgery and anaesthesia. In: Scurr et al, eds. *Scientific Foundations of Anaesthesia*, 4th edition. Heinemann Medical Books, London.

Kendall, P.C. Williams, L., Pechacek, T.F., Graham, L.E., Shisslak, C. & Herzoff, N. (1979). Cognitive-behavioral and patient education interventions in cardiac catheterization procedures: The Palo Alto medical psychology project. *Journal of Consulting and Clinical Psychology*, 47, 49-58.

- Mathews A. & Ridgeway V. (1981). Personality and surgical recovery: A review. *British Journal of Clinical Psychology*, 20, 243-260.
- Mathews, A., & Ridgeway, V. (1984). Psychological preparation for surgery. In A. Steptoe and A. Mathews (Eds). *Health Care and Human Behaviour*, pp 231-259. London: Academic Press.
- Mayande, A. & Salmon, P. (1992). Recovery from minor abdominal surgery: A preliminary attempt to separate anxiety and coping. *British Journal of Clinical Psychology*, 31, 227-237.
- Melamed, B.G. (1977). Psychological preparation for hospitalization. In S. Rachmad (ed.), *Contributions to Medical Psychology*, vol. 1. Oxford: Pergamon.
- Melzack, R. (1987). The short form McGill pain questionnaire. *Pain*, 30:191-197.
- Metivier, L. (1993). The effects of Music Therapy for the reduction of Anxiety in Women undergoing Stereo tactic Breast Biopsies. *AORN J*. University Hospitals of Cleveland.
- Mills, J.C. (1998). *A History of Behavioral Psychology*. New York: New York University Press.
- Mitchell, M. (1997). Patients' perceptions of preoperative preparation for day surgery. *Journal of Advanced Nursing*, 26(2), 356-363.
- Mullooly, V.M., Levin, R.F., Feldman, H.R. (1988). Music for Postoperative Pain and Anxiety. *Journal of New York State Nurses Association*, 19, 4-7.
- Otte, D.I. (1996). Patients' perspectives and experiences of day case surgery. *Journal of Advanced Nursing*, 23, 1228-1237.
- Petry, J.J. (2000). Surgery and complementary therapies: A review. *Alternative Therapies in Health and Medicine*, 6 (5), 64-74.
- Plumpton, F., Besser, G. (1969). The adrenocortical response to surgery and insulin-induced hypoglycaemia in corticosteroid-treated and normal subjects. *British journal of Surgery*, 56, 216-219.
- Quiles, M.J., Mendez, F.X., Hidalgo, M.D. (1999) The *Surgical Worries questionnaire*. 2001, Vol.30, No.4, Pages 271-281.
- Ramsay, M. A. E. (1972). A survey of pre-operative fear. *Anaesthesia*, 27, 396-402.
- Rapee, R.M. (1991). The conceptual overlap between cognition and conditioning in clinical psychology. *Clinical Psychology Review*, 11, 193-203.
- Reeves, J.L (1999). *Preparation for surgery: A Mind-Body Approach*. Cedars-Sinai Medical Center: UCLA School of Dentistry.

- Ridgeway, V. & Mathews, A. (1982). Psychological preparation of patients for surgery: A comparison of methods. *British Journal of Clinical Psychology*, 21, 271-280.
- Rogers, M. & Reich, P. (1986). Psychological intervention with surgical patients: Evaluation outcome. *Advances in Psychosomatic Medicine*, 15, 23-50.
- Salmon, P., Evans, R. & Humphrey, D.E. (1986). Anxiety and endocrine changes in surgical patients. *British Journal of Clinical Psychology*, 25, 135-141.
- Salmon P., Pearce S., Smith C. (1988). The relationship of preoperative distress to endocrine and subjective responses to surgery: support for Janis' theory. *Journal of Behavioural Medicine*, 11, 599-613.
- Salmon, P. (1992). Psychological factors in surgical stress: Implications for management. *Clinical Psychology Review*, 12, 681-704.
- Salmon, P. (1993). The reduction of anxiety in surgical patients: an important nursing task or the medicalization of preparatory worry? *International Journal for Nursing Students*, 30(4), 323-330.
- Scott, L.E., Clum, G.A. & Peoples, J.A. (1983). Pre-operative predictors of post-operative pain. *Pain*, 15, 283-293.
- Selye, H. (1976). *The Stress of Life*. McGraw-Hill, New York.
- Shevde, K. & Panagopoulos, G. (1991). A survey of 800 patients' knowledge, attitudes and general concerns regarding anaesthesia. *Anaesthesia Analogue*, 73, (2), 1908.
- Sime, A.M. (1976). Relationship of preoperative fear, type of coping and information received about surgery to recovery from surgery. *Journal of Personality and Social Psychology*, 34, 716-724.
- Smeltzer, S.C. & Bare, B.G. (1992). *Brunner & Suddarth's Textbook of Medical Surgical Nursing*. J.B. Lippincott Company. U.S.A.
- Sobel, M.D. & Ornstein, R. (1997). *The Healthy Mind, Healthy Body handbook*. Los Altos, California 94023.
- Spreads, C. (1978). *Breathing-ABCs*. New York: Harper and Row, 1978.
- Steelman, V.M. (1990). Interoperative music therapy: Effects on anxiety, blood pressure. *AORN J*. 52, 1026-1034.
- Stout-Shaffer, S. & Bittman, B. (1999). Enhance healing by providing tools that improve the emotional state. *Mind Body Wellness Center*, Meadville, P.A.
- Taenzer, P., Melzack, R. & Jeans, M.E. (1986). Influence of psychological factors on postoperative pain, mood and analgesic requirements. *Pain*, 24, 331-342.

- Tappen, R.M., Muzic, J. & Kennedy, P. (2001). Preoperative assessment and discharge planning for older adults undergoing ambulatory surgery. *AORN J*. Gale Group.
- Totman, R. (1987). *Social Causes of illness*. London: Souvenir.
- Tusek, D., Church J.M., Fazio V.W. (1997). Guided imagery as a coping strategy for perioperative patients. *Association of Operating Room Nurses Journal*, 66(4): 644-649.
- Uddin, I., Abdullah, A.R., Jamil, K.T. & Iftikhar, R. (2002). Preoperative anxiety in patients admitted for elective surgery in King Saud Hospital, Unaizah, Al-Quassim Kingdom of Saudi Arabia. *Pakistan Journal of Medical Science*, 18 (4) 306-310.
- Vijg, J. & Wei, J.Y. (1995). Understanding the biology of ageing: the key to prevention and therapy. *Journal of American Geriatrics Soc.* 43, 426-443.
- Vogele, C. & Steptoe, A. (1986). Psychological and subjective stress responses in surgical patients. *Journal of Psychosomatic Research*, 30, 205-215.
- Volcier, B.J. & Burns, M.W. (1977). Pre-existing correlates of hospital stress. *Nursing Research*, 24, 352-359.
- Walker J.A. (2002). Emotional and psychological preoperative preparation in adults, *British Journal of Nursing*, Vol 11 No 8, p567-575.
- Wallace, L. (1984). Psychological preparation as a method of reducing the stress of surgery. *Journal of Human Stress*, 10, 62-79.
- Wallace, L. (1986). Pre-operative state anxiety as a mediator of psychological adjustment to and recovery from surgery. *British Journal of Medical Psychology*, 59, 253-261.
- Weinman, J. & Johnston, M. (1988). Stressful medical procedures: An analysis of the effects of psychological interventions and of the stressfulness of the procedures. In S.Maes, C.D. Spielberger, P.B. Defares & I.G. Sarason (Eds). *Topics in Health Psychology*, pp. 205-217. New York: Wiley.
- Wells, J.K., Howard, G.S., Nowlin, W.F. & Vargas, M. J. (1986). Presurgical anxiety and post surgical pain and adjustment: Effects of a stress inoculation procedure. *Journal of Consulting and Clinical Psychology*, 54, 831-835.
- Wicklin, N. & Foster, J. (1994). The effects of a personal verses a factual approach videotape on the level of preoperative anxiety on same day surgery patients. *Patient Education Counselling*, 23, (1), 10714.
- Wilson-Barnett, J. (1979). *Stress in Hospital: Patients Psychological reactions to illness and Health care*. Edinburgh: Churchill Livingstone.

Wilson-Barnett, J. (1981). Anxiety in hospitalized patients. *R. Soc Health Journal* 101: 118-122

Wilson J. (1977). Determinants of recovery from surgery: preoperative instruction, relaxation training and defensive structure. *Dissertation Abstracts International* 38: 1476B.

Wilson, J.F. (1981). Behavioral preparation for surgery. Benefit or harm? *Journal of Behavioral Medicine*, 4, 79-102.

Wolpe, J. (1969). *The practice of Behaviour Therapy*. New York. Pergamon Press.

APPENDIX I**LETTER OF INFORMED CONSENT**

I have been given background information into this research study and I agree to comply with all the instructions given to me and to do my possible best to help with this research.

Signature

.....

Thank you.

RECORD OF EXERCISES

Name.....

RECORD OF BREATHING-IN EXERCISES

PLEASE TICK THE COLUMNS IF EXERCISE WAS PRACTISED

Week of	Morning	Evening	Comments
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

RECORD OF PROGRESSIVE MUSCLE RELAXATION EXERCISES**PLEASE TICK THE COLUMNS IF EXERCISE WAS PRACTISED**

Week of	Morning	Evening	Comments
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

APPENDIX II

DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF THE SAMPLE

DEMOGRAPHIC VARIABLES	TREATMENT GROUP				NON-TREATMENT GROUP			
	\bar{x}	SD	Freq.	%	\bar{x}	SD	Freq.	%
AGE	39.75	13.29	-	-	37.25	13.33	-	-
GENDER								
MALES			9	45			7	35
FEMALES			11	55			13	65
MARITAL STATUS								
MARRIED			13	65			12	60
SINGLE			7	35			8	40
DIVORCED			-	-				
WIDOWED			-					
EDUCATION								
NONE			9	45			8	40
PRIM/J.S.S.			6	30			5	25
SEC./TECH./VOC			2	10			6	30
TERTIARY			3	15			1	5
TYPE OF SURGERY								
MAJOR			14	70			6	30
MINOR			14	70			6	30

14. How do you view the hospital environment?

Pleasant

Not pleasant

Part II

Below are situations that occur when a person is admitted to the hospital for an operation. Tell me how worried you are about each situation using the following scale:

Please circle the appropriate one

0	1	2	3	4
Not at all	A little Worried	Moderately worried	Considerably worried	Extremely worried

I'm worried about:

1. This operation I am going in for

0 1 2 3 4

2. Pain after the operation

0 1 2 3 4

3. Waking up during the operation

0 1 2 3 4

4. A long wait for the operation to commence

0 1 2 3 4

5. Loosening control or appearing foolish

0 1 2 3 4

6. Not awakening from anesthesia

0 1 2 3 4

7. The operation leaving scars

0 1 2 3 4

8. Not being able to do the same things as before

0 1 2 3 4

9. Injections

0 1 2 3 4

10. Sickness / vomiting or coughing

0 1 2 3 4

11. Do you know something about your operation?

Yes No

12. If yes who provided you with the information

Doctor Nurse Others

13. How do you cope with the worries about your operation?

.....

.....

.....

.....

PART III

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

	Not All	At	Mildly but it didn't bother me much	Moderately – it wasn't pleasant at times	Severely – it bothered me a lot
1. Numbness-having no ability to feel	0		1	2	3
2. Feeling hot-having high temperature	0		1	2	3
3. Wobbliness in legs-move unsteadily from side to side	0		1	2	3
4. Unable to relax	0		1	2	3

5.Fear of worst happening	0	1	2	3
6.Dizzy-feeling as if everything were moving around	0	1	2	3
7.Heart pounding/racing-heart beating fast	0	1	2	3
8.Unsteady-feeling unbalanced	0	1	2	3
9.Terrified or afraid	0	1	2	3
10.Nervous-panicky	0	1	2	3
11.Feeling of choking-being unable to breathe	0	1	2	3
12.Hands trembling-hands shaking involuntarily	0	1	2	3
13.Shaky- trembling	0	1	2	3
14.Fear of loosening control-having left everything in the hands of doctors and nurses	0	1	2	3
15.Difficulty in breathing	0	1	2	3
16.Fear of dying	0	1	2	3
17.Scared-frightened	0	1	2	3
18.Indigestion-upset stomach	0	1	2	3
19.Faint/Lightheaded-lose consciousness	0	1	2	3
20. Have frequent urination	0	1	2	3
21.Hot/Cold sweats	0	1	2	3
Column Sum				

22. Have you been feeling any pain apart from the operation site since you were informed about your surgery?

Yes

No

23. If yes, where is the pain located?

.....

.....

.....

SECTION B

1. Blood pressure.....

2. Pulse rate.....

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

	Not At All	Mildly but it didn't bother me much	Moderately – it wasn't pleasant at times	Severely – it bothered me a lot
3. Indigestion-upset stomach	0	1	2	3
4.Scared-frightened	0	1	2	3
5.Wobbliness in legs-move unsteadily from side to side	0	1	2	3
6.Fear of worst happening	0	1	2	3
7.Nervous-panicky	0	1	2	3
8.Dizzy-feeling as if everything were moving around	0	1	2	3
9.Heart pounding/racing-heart beating fast	0	1	2	3
10.Feeling of choking-being unable to breathe	0	1	2	3
11.Terrified or afraid	0	1	2	3
12.Hot/Cold sweats	0	1	2	3
13.Faint/Lightheaded-lose consciousness	0	1	2	3
14.Hands trembling-hands shaking involuntarily	0	1	2	3
15.Fear of dying	0	1	2	3

16.Fear of loosening control-having left everything in the hands of doctors and nurses	0	1	2	3
17.Difficulty in breathing	0	1	2	3
18.Numbness-having no ability to feel	0	1	2	3
19.Have frequent urination	0	1	2	3
20.Shaky-trembling	0	1	2	3
21.Unable to relax	0	1	2	3
22.Unsteady-feeling unbalanced	0	1	2	3
23.Feeling hot-having high temperature	0	1	2	3
Column Sum				

24. Have you been feeling any pain apart from the operation site since you were informed about your surgery?

Yes

No

25. If yes, where is the pain located?

.....

.....

.....

SECTION C

PAIN PERCEPTION:

1. How many painful episodes have you had after your operation?

.....

2. How long did the painful episode last after the operation?

Hours.....

Days.....

3. On a scale of 0 – 10 (0 – no pain, 10 – pain as bad as it can be) how would you rate this particular painful episode after the operation?

.....(Write number, example 1, 2, . . .10)

4. During a painful episode are you able to stand or walk?

Yes No

If you are currently in pain what does the pain feel like / If you are currently not in pain what did your last episode of pain after the operation feel like

NB: The words below describe pain; please tick the words that describe your pain under the column that describes its intensity

	None 0	Mild 1	Moderate 2	Severe 3
5.Throbbing-Vibrating				
6.Shooting-it happens suddenly and goes quickly				
7.Stabbing-feels like being pierced by a knife				
8.Cramping-sudden and painful tightening of muscles				
9.Gnawing-biting or tormenting				

10.Hot – Burning				
11.Aching- continuous pain				
12.Heavy-having weight making it difficult to move				
13.Tender-one that hurts when touched				
14.Splitting-feel pain that is so severe that it may break into parts				
15.Tiring/Exhausting				
16.Sickening-disgusted or unpleasant				
17.Fearful				
18.Punishing / Cruel-causing discomfort				

19. How long have you been in the hospital?

.....

20. What medications have you taken after the operation?

Antibiotics

Analgesics (mouth, injection)/Tranquilizers

.....

.....

.....

.....

.....

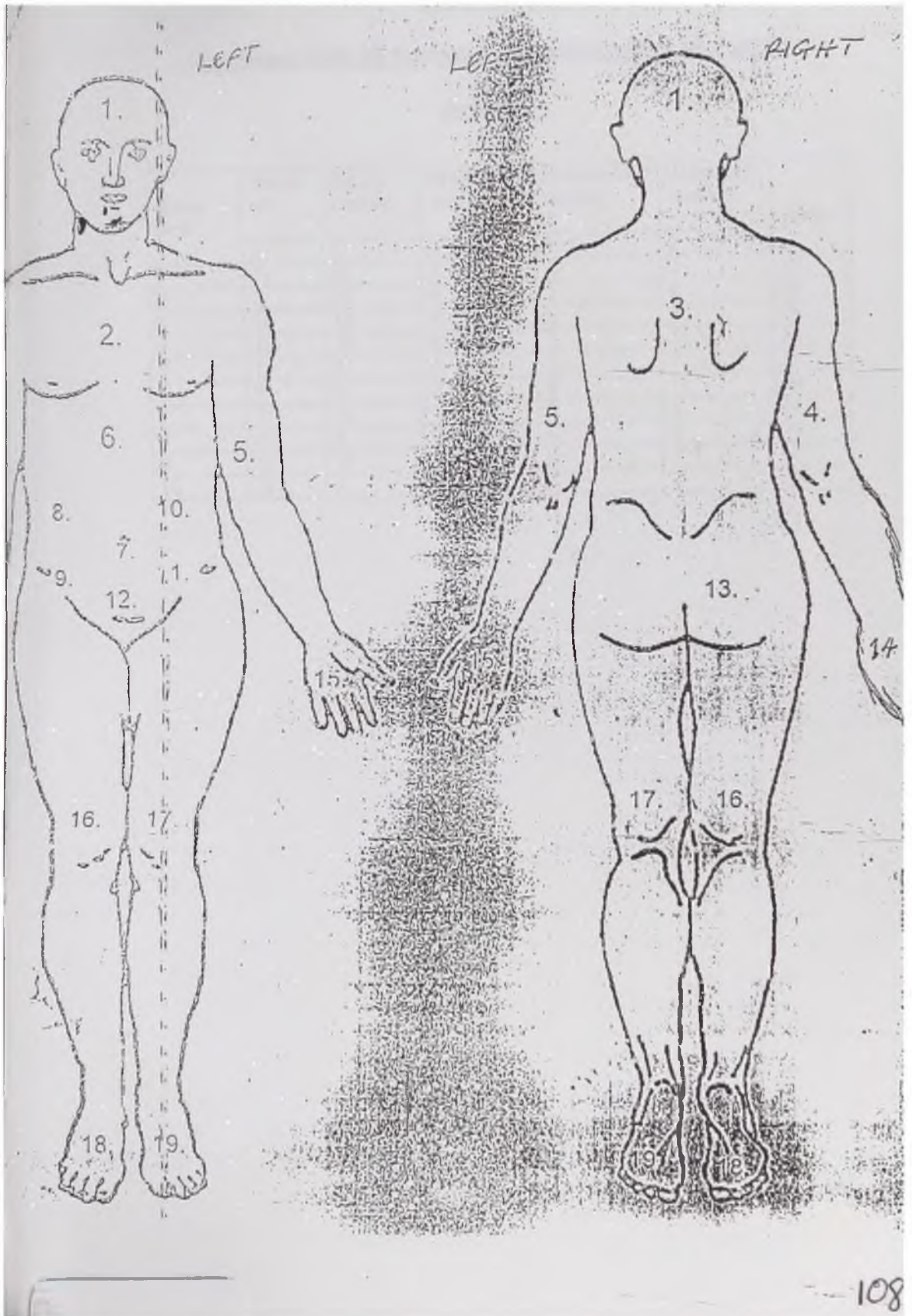
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21. Where is your pain?

Please mark on the drawings on the next page the areas where you feel pain.



APPENDIX IV**Frequency table on worries of the patient before the surgery****Responses**

Worry kind	Not at all	A little worried	Moderately worried	Considerably worried	Extremely worried	Totals
	0	1	2	3	4	
1	11	11	5	13	3	40
2	8	15	4	5	6	38
3	16	14	4	2	2	38
4	16	10	6	3	3	38
5	12	8	5	7	7	39
6	9	9	2	8	12	30
7	17	12	2	5	4	40
8	12	8	6	6	7	39
9	15	13	2	4	5	39
10	18	9	3	5	2	38

APPENDIX V**Frequency table on number of days patients spent in hospital after the operation**

Days	Experimental group		Control group		Grand total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1 - 2	0	-	0	-	0	-
3 - 4	0	-	0	-	0	-
5 - 6	9	45	4	20	13	32.5
More than 6 days	5	25	10	50	15	37.5
No response (Unspecified)	6	30	6	30	12	30
Totals	20	100	20	100	40	100

Frequency table on the number of Antibiotics taken by patients

Antibiotics	Experimental group		Control group	
	Frequency	Percentage	Frequency	Percentage
1	12	60	11	55
2	5	25	7	35
3	3	15	1	5
More than 3 different antibiotics	0	0	1	5
Totals	20	100	20	100

Frequency table on the number of Analgesics/Tranquilizers taken by patients

Analgesics	Experimental group		Control group	
	Frequency	Percentage	Frequency	Percentage
1	5	25	2	10
2	3	15	2	10
3	2	10	4	20
More than 3 different Analgesics	10	50	12	60
Totals	20	100	20	100