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Factors Affecting Pain Intensity Post Caesarean Section in Governmental Hospitals in the West Bank-Palestine

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الإهداء

حمدا لله على نعمه التي لا تحصى و شكراً له على ما أنعم به علي من قدرة أعانتني على الدراسة و التحصيل وما أمدني به من صبر وجهد للوصول إلى نتائج أوسع في هذا المجال.

أهدي خلاصة جهدي إلى أعز الناس لقلبي أفراد أسرتي والى جميـــع أهلـــي الذين لم يألوا جهداً ولم يدخروا وسعا في تهيئة الظروف الملائمة لي لأتمكـــن مـــن الدراسة و البحث.

شكر وتقدير

أتقدم بالشكر والعرفان إلى أساتذتي الأفاضل في برنامج الصحة العامة في جامعة النجاح الوطنية لدعمهم وتشجيعهم لي. وأخص الشكر والتقدير الدكتور أيمن حسين المشرف على هذه الرسالة على الجهود التي بذلها من أجل إخراج هذه الرسالة إلى النور والشكر والتقدير إلى الدكتور هشام النعنع على المساعدة وأثمن دعمه وتشجيعه جزاه الله عني خير الجزاء.

كما أتقدم بالشكر والتقدير إلى وزارة الصحة و كل المستشفيات بمدرائها و الطواقم الطبيه التي فتحت أبوابها أمامي ومكنتني من الوصول أقسام ما بعد الولادة والملفات بحثاً عن الحقائق.

وأخيراً أشكر جميع الزملاء الذين عملوا وتعاونوا معي في جمع البيانات التي بينت عليها رسالتي ولكل من كان عوناً وسنداً لي في إنجاز هذه الدراسة.

إقـــــــرار

أنا الموقع أدناه مقدم الرسالة التي تحمل العنوان:

Factors Affecting Pain Intensity Post Caesarean Section in Governmental Hospitals in the West Bank-Palestine

العوامل المؤثرة في حدة الألم بعد العملية القيصرية في المستشفيات الحكومية في الضفة الغربية في فلسطين

أُقر بأن ما اشتملت عليه هذه الرسالة، إنما هو نتاج جهدي الخاص، باستثناء ما تمت الإشارة إليه حيثما ورد، وأن هذه الرسالة ككل، أو أي جزء منها، لم تُقدم من قبل لنيل أية درجة أو لقب علمي أو بحثي لدى أية مؤسسة تعليمية أو بحثية أخرى.

Declaration

The work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

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List of Abbreviations

APS	Acute Pain Services
ASA	American Society of Anaesthesiologists
BA	Bachelor of Arts
Bp	Blood pressure
CD	Caesarean Delivery
CDC	Centres for Disease Control and Prevention
CS	Caesarean Section
CV	Cardio vascular
df	Degree of freedom
ETT	Endotracheal Tube
GA	General Anaesthesia
IM	Intra Muscular
IVPCA	Intravenous patient controlled analgesia
IV	Intra Venous
JCAHO	Joint commission on Accreditation of Healthcare Organizations
LA	Local Anaesthesia
LOS	Length of Stay
MA	Master
NGT	Nasogastric tube
NSAIDs	Nonsteroid Anti-inflammatory Drugs
PCA	Patient Control Analgesia
RA	Regional Anaesthesia
SPSS	Statistical Package for Social Science
UK	United Kingdom
USA	United State of America
VAS	Visual Analogue Scales
WB	West Bank
WHO	World Health Organization

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Abstract

There has been a gradual increase in cesarean births over the past 30 years. In November 2005, the Centers for Disease Control and Prevention (CDC) reported that the international cesarean birth rate was the highest ever at 29.1%, which is over a quarter of all deliveries; The CDC has made it a national goal to get the number down for "low-risk" mothers by 2010. In the West Bank, there is no clear information (specific statistics) about the percentage of caesarean section (CS). In Rafedia Surgical Hospital in Nablus the C.S was about 11% in the seventies and jumped to 13-14% in the eighties and nineties of this century. According to hospital records, in the last 4 years this percentage has been about 14-15%. During the AL-AQSA Uprising in 2000-2004 this percentage remained the same till the incursion of Nablus city in 2002; the percentage jumped to about 21% as women demanded at their own choice or request caesarean delivery to avoid delay at check points. This study aims to identify factors affecting pain intensity postoperative in women undergoing caesarean section. The study was conducted during the period from February-March, 2007. It was implemented in three governmental hospitals in the cities of Nablus, Jennie and Ramallah. The patient questionnaire was conducted through face to face interviews and patients files. Several hypotheses were formulated and

tested through SPSS, multiple comparison analysis and Microsoft office excel. At power of 0.05 there were significant statistical differences between pain intensity and the following variables: source of information about pain, history of pain post caesarean section, length of operation, type of stitches, nurse approach with pain and fatigue, way of pain reflection, ambulation post caesarean section, and bad events related to patients directly.

However, at the same power, there were no significant statistical differences between pain intensity and the following variables: family support, baby weight, baby gender, health team, place of living, profession, income, qualification, anti-natal care, number of pregnancies, smoking, drinking tea, drinking coffee, route of medication used.Pain management has been established as one of the benchmarks of quality health care.

A high percentage of 75.7% represents pain severity (6-10) on Visual Analogue Scales (0-10) post CS in this study; this result requires more attention for pain management post operative and the quality of hospital care now must include the assessment of pain relief. Our data showed that source of information and past history of pain have a strong association to pain intensity. The result also showed that operation technique and its time affected on pain intensity and let the lady to be early ambulation. This enabled the mother to take care of her baby. In conclusion findings showed that pain severity was high in most of the cases of pain on scale (6-10). Attention should be given for these factors which affect pain intensity post caesarean section.

Keywords: Caesarean section, pain intensity, pain management postoperative.

Chapter One

Introduction

Introduction:

Pain is a complex, biopsychosocial phenomenon that occurs among widely diverse groups of patient population including pregnant women. It is a primary sensation that serves to protect the human organism against further damage from external and internal occurrences (1). It is estimated that 50% - 75% of patients in general have inadequate pain relief (2). During the first 24 hours after surgery the recorded pain levels were 60% maximum according to VAS (0-10). In general, incidence of pain among hospitalized patient's falls between 45% and 78% (3). The impact of pain is evident at social, clinical, and regulatory levels. Poor management of postoperative pain has been linked to reduced quality of life and interferes with physical therapy (4). Unrelieved pain can have harmful effects. Pain makes it difficult to get a restful night of sleep and pain can make it difficult for some patients to breathe deeply. Pain can cause physical stress, anxiety, fear, and a feeling of hopelessness. Recent surveys in USA showed that a large proportion of patients still receive inadequate post-surgical analgesia. Pain management is considered as an important part of care; pain is now considered the fifth vital sign (5). The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) implemented pain management standards in 2001 that recognized patients' rights to appropriate assessment and management of pain (6).

The World Health Organization (WHO) reported in 2003 that pain is the leading cause of death and disease burden worldwide (7). Acute pain is still a major factor that annoys both patients and hospital staff. The intensity of feeling the pain varies from patient to patient, depending on patient's pain threshold, family and hospital staff support. Having a baby is considered a pleasant event, but it can be annoying if the mother is in pain during childbirth (8).

Background:

Pain is a major problem in surgery, including caesarean section; post caesarean section pain is a common cause of acute pain in obstetrics, although pain relief and patient satisfaction are still inadequate in many cases (9).Today, caesarean section is one of the most frequently performed surgeries in the world (8). Caesarean births are more common than most surgeries, due to many factors. The first factor, of course, is that nearly 50% of the world populations are women, and pregnancy is still a very common condition! However, more important is the fact that a Caesarean section may be life saving for the baby, or mother (or both) (10). Postoperative pain after caesarean section (CS) is generally underestimated relatively, few studies have been published in recent years investigating the different modalities of pain relief after surgical delivery of the neonate (11), however adequate pain relief after low abdominal surgery will improve maternal satisfaction, ameliorate maternal recovery and allow the parturient to nourish her new born child adequately can reduce risk of thromboembolic disease and infections, which increase during pregnancy (12).

1. Caesarean Delivery

1.1 Definition:

A cesarean birth happens through an incision in the abdominal wall and uterus rather than through the vagina (8). The origin of the term (caesarean) is not entirely clear. It is unlikely that Julius Caesar was born by abdominal delivery, as this was almost universally fatal for parturient during that era and Caesar's mother is known to have survived his birth.

1.2 Indications for CS:

Caesarean section (CS) is recommended when vaginal delivery might pose a risk to the mother or to the baby. Reasons for caesarean delivery include:

- Prolonged labor or failure to progress (dystocia).
- Apparent fetal distress.
- Apparent maternal distress
- Complications (pre-eclampsia, active herpes).
- Catastrophes such as cord prolapse or uterine rupture.
- Multiple births.
- Abnormal presentation (breech or transverse positions)
- Failed induction of labor
- Failed instrumental delivery (by forceps or ventouse).
- The baby is too large (macrosomia)
- Placental problems (placenta praevia, placental abruption or placenta accreta)
- Contracted pelvis
- Previous caesarean section (though this is controversial).
- Prior problems with the healing of the perineum (from previous childbirth or Cohn's Disease) (11).

1.3 Operative Technique:

Incision: Pfannenstiel incision is still the most common incision of caesarean section. Joel-Cohen (Misgav Ladach Modification) incision begins with a transverse incision, 15-17cm long, made 3cm below the anterior superior iliac crests. Midline vertical incision is rarely used now as experienced obstetrician can open the abdominal wall within 2 min through transverse incision (13). The uterus can be closed by single layer vicryl. It is better to leave the peritoneal cavity open as it usually closes in 24 hours leaving less adhesion as re-epithelization occurs within 48 hours (13). When the use of cautere during CS is avoided, the post operative cautere during CS is avoided, the post operative pain is less and this reduces need for pain killers (10).

1.4 Anesthesia for Caesarean Section

As with any operation, the anesthetist should first think about all problems that may occur; it is always better to be prepared for trouble than to be taken by surprise(14). The problems concern 4 areas:

1- The patients.

2- The surgery (and the surgeon).

3- The drugs (both anesthetic drugs and any taken by the patient).

4- Equipment.

1.5 Anesthesia

Three anesthetic techniques are possible for CS (15):

1.5.1 Local infiltration anesthesia with or without supplementation.

1.5.2 Regional anesthetic.

1.5.3 General anesthetic.

1.5.1 Local Anesthetic (LA).

The local anesthetic infiltration is normally carried out by the surgeon. Work out the maximum safe dose of the drug being used and add Adrenaline at the rate of 5 micrograms per ml of LA (15). Supplementation of drugs is a problem because of the effects on the fetus and the first choice is to give nothing until the cord is clamped, after which small doses of narcotic or sedative may be used. Probably the safest supplementation is nitrous oxide in oxygen or Trilene in air (+/- oxygen).

1.5.2 Regional anesthetic.

Either epidural (extramural) or spinal (subarachnoid) blocks may be used. A combined spinal plus epidural technique is commonly practiced (e.g. in United Kingdom) which has the advantages of a dense subarachnoid block, with the potential for topping up the anesthetic via the epidural if necessary. This combined technique is rarely done in the developing world and will not be further discussed. The main advantage of epidurals is that they are suitable for prolonged use e.g., in labor and for post Caesarean section pain relief (16, 17). Spinal anesthesia has many advantages for anesthesia for lower segment cesarean section (LSCS) (14, 16).

1.5.2.1 Drugs, ampoules and doses of anesthetic.

A hyperbaric agent (local anesthetic mixed with glucose) is most useful as it has a quick and predictable onset and usually produces a dense block; Table 1.1 explains types of medications (15).

Table (1.1): Local anesthetics suitable for spinal anesthesia.

Drug	**Volume**	**Approximate length of action**
Bupivacaine (Marcian) 0.5%. hyperbaric or plain	2-2.5 ml	2 - 3 hours
Lignocaine 5% hyperbaric +/- 0.2ml of 1:1000 adrenaline)	1.2 - 1.6 ml	45 - 90 minutes (with Adrenaline
Lignocaine 2% plain + Adrenaline 0.2 ml of 1:1000	2 - 2.5 ml	60 - 120 minute

1.5.3 General Anesthesia (GA)

General anesthesia will be necessary if there are contraindications to spinal anesthesia or if you cannot encourage either the mother or the surgeon to do the operation while the patient is awake (17.18).

1.5.3.1 Indications for General Anesthesia

Inclusion criteria:-

- Fetal distress.
- Significant coagulopathy.
- Acute maternal hypovolemia.
- Sepsis or local skin infection
- Failed regional anesthesia.
- Maternal refusal of regional anesthesia.

1.5.3.2 Medication for GA

The following agents are used for the induction of general anesthesia (19).

Thiopental (Pentothal ®)

- Thiopental 25mg/kg IV, fast and reliable, short-acting barbiturate with sedative hypnotic.
- Negative inotrope and vasodilator.
- Cross placenta; Sodium Thiopentone (STP) concentration rarely exceeds the threshold for fetal depression with dose less than 4mg/kg.
- Half-life elimination: 3-11.5 hours.

Propofol (Diprivan ®)

- Propofol 1-2.5mg/kg IV.
- Rapid induction and rapid awakening its hypnotic agent.
- Negative inotrope and vasodilator.
- May inhibit oxytocin induced uterine contraction.
- Can be rapidly cleared from neonatal circulation.
- Half-life elimination: Biphasic: Initial: 40 minutes; Terminal: 4-7 hours (up to 1-3 day.

Ketamine (Ketalar ®)

- Ketamine 1-2mg/kg IV.
- Contraindication to use for modest hemorrhage or parturient asthma.
- Provide rapid analgesia, hypnosis, and amnesia.
- May depress myocardium and reduce CO and Bp in severe hypovolemic patients.
- More than 2mg/kg associate with fetal depression.
- Half-life elimination: 11-17 minutes; Elimination: 2.5-3.1 hours.

Succinylcholine (Quelicin ®)

- Succinylcholine (SUX) 0.3-1.5mg/kg IV.
- Succinylcholine is neuromuscular blocker (depolarizing).
- Indications for used are to facilitate intubation, terminating laryngospasm and muscle relaxation
- Spontaneous ventilation may resume in 2-3 minutes with low dose SUX (0.3-0.5mg/kg), but peak time delayed by about 10-15 seconds.
- Like nondepolarizing blockers, depolarizing drugs also bind to the nicotinic M receptors for acetylcholine. However, because they cause an initial depolarization of the muscle membrane, they often lead to fasciculations and some muscular contractions prior to inducing paralysis

1.6 Pain

1.6.1 Definition:

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage (20). Medical and technological advances have made pain more manageable today than ever before. Pain management has been established as one of the benchmarks of quality health care (21).

Pain is always subjective. Each individual learns the application of the word through experiences related to injury in early life (1). The impact of pain is evident at social, clinical, and regulatory levels. Poor management of postoperative pain has been linked with reduced quality of life, and it interferes with physical therapy. Those consequences translate not only into reduced patient satisfaction but also an increased economic burden that is reflected in the length of hospital stays and number of patient readmissions for the treatment of uncontrolled pain. Recognizing some of these concerns, a special congressional mandate declared 2000-2010 to be the Decade of Pain Control and Research to generate increased understanding and awareness of pain (15).

1.6.2 Acute Pain Services:

The development of Acute Pain Services (APS) may be cost-effective as well as providing an improved quality of services for patient undergoing caesarean section (21). JCAHO has issued guidelines for hospital-wide improvement of pain management. The most obvious components of an acute pain team include anesthesiologists, surgeons, nurses, and physiotherapists. Protocols encourage consistent standards of

safe and effective care and should be used as a framework to individualize treatment. APS models have been described from USA, UK, Germany, Switzerland and Sweden (6, 21). Quality hospital care must now include the assessment of pain relief. Effective pain management is fundamental to the quality of care (18).

1.6.3 Pathophysiology:

Physiologic processes, including the activity of neurotransmitters, are operative at multiple sites along this structural pathway to aid in conveying the signal. This process is referred to as nociception (1, 20). Nociceptive process begins at peripheral level. When damage occurs, biochemical agents that initiate or sensitize the nociceptive response are released.

These agents include potassium, substance P, bradykinin, and prostaglandin, among others (1, 20). The initial injury provokes a series of physiologic events (Figure **1).**

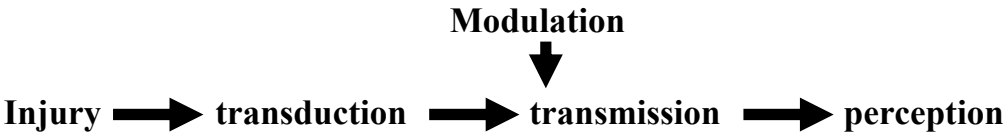


Figure (1): The Nociceptive Process.

The sensory experience of pain depends on the interaction between the nervous system and the environment. The process of pain consists of four phases (16, 20).

1.6.3.1 Transduction

1- Transduction refers to the conversion of chemical information at the cellular level into electrical impulses that move toward the spinal cord (1, 20).

1.6.3.2 Transmission

2- Transmission is the phase during which stimuli move from the peripheral nervous system toward the brain (1, 20).

1.6.3.3 Perception

3- Perception occurs when the pain threshold (point at which sufficient pain transmitting stimuli reach the brain) is reached (1, 20).

1.6.3.4 Modulation

4- Modulation is the last phase of pain impulse transmission during which the brain interacts with the spinal nerves in a downward fashion to subsequently alter the pain experience (1, 20).

1.6.4 Pain theory

1.6.4.1 History of pain theory

Specificity theory

Traditional theory of pain is known as 'specificity theory'. This theory proposed that a specific pain system carried messages from the pain receptors in the skin to a pain center in the brain. A description of this theory was provided by Descartes (1664) (22).

Muller (1842) stated that the brain received information about external objects by way of the sensory nerves, and proposed the doctrine of specific nerve energies (22). In 1920 Head proposed that thalamus contained the pain center and that the cortex was able to exert inhibitory control over it. Von Frey (1942) elaborated on Muller's theory and stated that there were four sensory modalities: touch, cold, warmth, and pain. He also identified a separate centre for each modality, located in the brain (22). In 1957 Keele established that the pain pathway followed the ascending spinothalamic tract (22).

Pain Gate Theory

In the 1965 Melzack and Wall proposed the gate control theory; this states that within the spinal cord there are factors that may block or close the gate to pain messages, but equally there are factors that open up the gate and make us more aware of the pain (23).

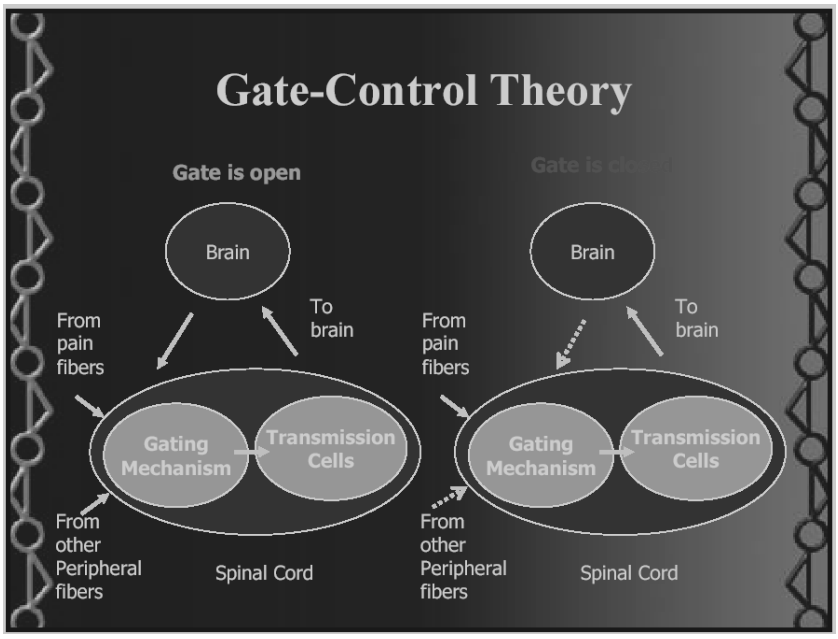


Figure (2): Gate – Control Theory

1.6.5 Types of pain

Pain is categorized according to its duration, location, and etiology; the three basic categories of pain are generally recognized: acute pain, chronic, and cancer-related pain (20).

1.6.5.1 Acute pain

Acute pain can be defined as lasting for seconds to 6 months. Short–term pain is often related to surgical procedures, recent disease, inflammation, injury and childbirth (23). Pain is significant in that it draws attention to its existence and teaches the person to avoid similar potentially painful situations. If no lasting damage occurs and no systemic disease exists, acute pain usually decreases along with healing (24).

1.6.5.2 Chronic pain

Chronic pain may be defined as pain that lasts for 6 months or longer, although 6 months is an arbitrary period for differentiating between acute and chronic pain (24). Chronic pain long–term is constant or intermittent pain that persists beyond the expected healing time and can seldom be attributed to a specific cause or injury (24). It may has a poorly defined onset, and it is often difficult to treat because the cause or origin may be unclear, if it persists it may become the patient's primary disorder (16).

1.6.5.3 Cancer-Related pain

Pain associated with cancer may be acute and chronic. Pain resulting from cancer is so ubiquitous that after fear of dying, it is the second most common fear of newly diagnosed cancer patients (25).

1.6.6 Complications of unrelieved pain

Pain control may have a further benefit of improving clinical outcome by reducing the incidence of postoperative complications such as (25):

- Myocardial infarction or ischemia.
- Risk of tachycardia and dysrhythmia.
- Impaired wound healing.
- Risk of atelectasis.
- Thromboembolic events.
- Peripheral vasoconstriction.
- Metabolic acidosis.
- Emotional and psychological on both patient and family.

1.6.7 Characteristics of pain

The factors to consider a complete pain assessment are the intensity, timing, location, quality, personal meaning aggravating and alleviating factors, and pain behavior (20).

1.6.7.1 Intensity

The intensity of pain ranges from none to mild discomfort to excruciating. There is no correlation between reported intensity and stimulus that produced it. The reported intensity is influenced by the person's pain threshold and pain tolerance. Pain threshold is the smallest stimulus for which a person reports pain and the tolerance is the maximum amount of pain a person can tolerate (20).

1.6.7.2 Timing

Sometimes the etiology of pain can be determined when time aspects are known. Sudden pain that rapidly reaches maximum intensity is indicative of tissue rupture, and immediate intervention is necessary. Pain from ischemia gradually increases and becomes intense over a longer time (20).

1.6.7.3 Location

The location of pain is best determined by having the patient point to the area of the body involved. The shaded figures are helpful in determining the effectiveness of treatment or change in location of pain over time (20).

1.6.7.4 Quality

Pain is subjective for that patient can alone describe the pain in his or her words without offering clues, the nurse carefully records all the words that were said (20). Patient experiences pain differently, and the pain experience can mean many different things. It is important to ask how has the pain affected the person's daily life (20).

1.6.7.5 Aggravating and Alleviating Factors

There are factors which make pain better or worse, so this helps to detect factors associated with pain. Knowledge of alleviating factors assists the nurse in developing treatment plan (20).

1.6.7.6 Pain Behaviors

When experiencing pain, people express pain in many different behaviors. These nonverbal and behavioral expressions of pain are not consistent or reliable indicators of quality or intensity of pain, and should not be used to determine the existence or the degree of pain experienced (20).

1.6.8 Instruments for Assessing the Perception of Pain

Pain is a complex phenomenon precluding objective assessment. The sensation of pain is not directly measurable because pain is a unique personal experience, only the patient can accurately describe and assess his or her pain (20).Therefore, a number of pain assessment instruments have been developed to assist the assessment of patient's perception of pain (20).

1.6.8.1 Pain Intensity Assessment Tool

1- Visual Analogue Scales (VAS) ; (see figure 2) assessing the intensity of pain. One version of the scale includes a horizontal 10-cm line, with anchors indicating the extremes of pain. The left anchor usually represents “none” or” no pain,” whereas the right anchor usually represents” severe” or “worst possible pain". Some patients (e.g., children, elderly patients or cognitively impaired patients) may find it difficult to use an unmarked VAS. In those circumstances, ordinal scales (sample descriptive pain intensity scale, or 0 to 10 numeric pain intensity scale) may be used (16, 21).

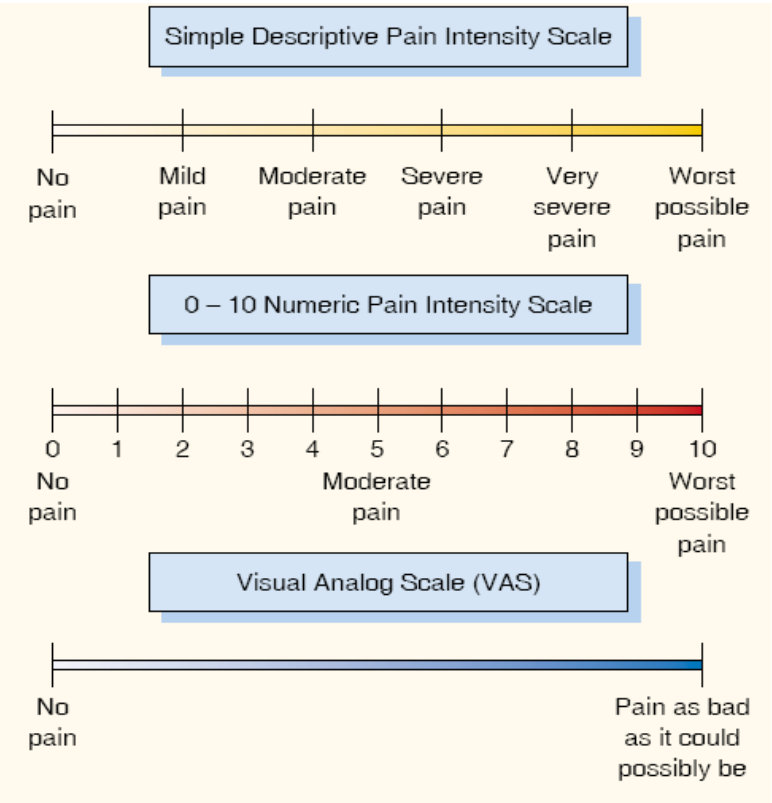


Figure (3): Pain intensity scales.

2- Faces Pain Scale, this scale has six faces depicting expressions that range from contented to obvious distress. The patient asked to point to the face that most closely resembles the pain intensity felt (16, 21).

Figure (4): Faces Pain Scales (0 no pain-10 very much pain).

1.6.9 Factors influencing analgesic requirement and consumption

A person's pain experience is influenced by a number of factors; these factors may increase or decrease the person's perception of pain or tolerance for pain, and affect the responses to pain (16, 20).

1.6.9.1 Past Experience

It is tempting to expect that a woman who has had multiple or prolonged experiences with pain would be less anxious and more tolerant of pain than a woman who has had little pain (25). Preoperative patient education improves expectations, compliance and ability to effectively interact with pain management techniques.

1.6.9.2 Anxiety and depression

Research has demonstrated no consistent relationship between anxiety and pain, postoperative anxiety is most related to preoperative anxiety and postoperative complication (26).

1.6.9.3. Culture

Beliefs about pain and how to respond to it differ from one culture to another, (e.g., patients vary from being intolerant of any discomfort to surprising self-control or patients consider pain to be a normal part of life) (20).

1.6.9.4 Age

The way an older person responds to pain may differ from the way a younger person responds. Because elderly people have a slower metabolism and greater ratio of body fat to muscle mass than younger people, small doses of analgesia agents may be sufficient to relieve pain in young person and these doses may be effective for longer periods (20).

1.6.9.5 Gender

Researchers have studied gender differences in pain levels and responses to pain, women had higher pain intensity, pain unpleasantness, frustration, and fear compared to men (20).

1.6.9.6 Medication

Pre and post operative analgesic use and good analgesia are important after caesarean section to provide the mother with opportunities for mother child bonding, early ambulation and discharge (20).

1.6.10 Treatment of Pain

According to the American Society of Anesthesiologists (ASA), it is recognized that: Education and training of personnel and patients are the key to enhancing pain control and decreasing adverse outcomes, and the guidelines reflect these issues (27). Management of acute pain after caesarean section has evolved considerably over the past decade. In many institutions, with intravenous patient-controlled analgesia and neuraxial opioids, have replaced traditional intramuscular opioid injections. The general approach to pain after caesarean section is changing, shifting away from traditional opioid-based therapy toward a “multimodal" or “balanced” approach. Multimodal pain therapy involves the use of a potent opioid regimen, such as patient-controlled analgesia or neuraxial opioids, in combination with other classes of analgesic drugs. Theoretically, the use of analgesic drugs in combination allows for additive or even synergistic effects in reducing pain while decreasing the side effects produced by each class of drug because smaller drug doses are required. Typical analgesic regimens include opioids; nonopioid analgesics, such as acetaminophen;

and non- steroidal anti-inflammatory drugs, with the variable addition of local anesthetic techniques. Despite current advances in postoperative pain therapy, pain relief may still be inadequate for a substantial number of women (4). This may be particularly true as they make the transition from relative dependency on potent opioid regimens to full dependency on oral analgesics on the second postoperative day (1, 28, 29).

1.6.10.1 Patient-Controlled Analgesia

Used to manage postoperative pain as well as chronic pain, patient controlled analgesia (PCA) allows patients to control the administration of their own medication within predetermined safety limits. This approach can be used with oral analgesic agents as well as with continuous infusions of opioid analgesic agents by intravenous, subcutaneous, or epidural routes. PCA can be used in the hospital or home setting (24).

1.6.10.2 Opioid Analgesic Agents

Opioids can be administered by various routes, including oral, intravenous, subcutaneous, intraspinal, intranasal, rectal, and transdermal routes. The goal of administering opioids is to relieve pain and improve quality of life; therefore, the route of administration, dose, and frequency of administration are determined on an individual basis (24).

With the administration of opioids by any route, side effects must be considered and anticipated (24).

1.6.10.3 Local Anesthetic Agents

Local anesthetics work by blocking nerve conduction when applied directly to the nerve fibers; there are two types (20).

* Topical Application

  Local aesthetic agents have been successful in reducing the pain associated with thoracic or upper abdominal surgery when injected by the surgeon intercostals.

* Epidural Administration

  Intermittent or continuous administration of local anaesthetic agents through an epidural catheter has been used for years to produce anaesthesia during surgery.

1.6.10.4 Nonsteroidal Anti-inflammatory Drugs (NSAIDs)

NSAIDs are thought to decrease pain by inhibiting cyclo-oxygenase (COX), the rate-limiting enzyme involved in the production of prostaglandin from traumatized or inflamed tissues. There are two types of COX: COX-1 and COX-2. COX-1 is involved with mediating prostaglandin formation which is involved in the maintenance of physiologic functions. Some of the physiologic functions include platelet aggregation through the provision of thromboxane precursors and increased gastric mucosal blood flow (20).

Chapter Two

Literature Review

1. General Background

There has been a gradual increase in cesarean births over the past 30 years. In November of 2005, the Centers for Disease Control and Prevention (CDC) reported that the international cesarean birth rate was the highest ever at 29.1% (9), which is over a quarter of all deliveries; The CDC have made it a national goal to get the number down for "low-risk" mothers by 2010 (9). This means that over 1 in 4 women will experience a cesarean delivery (8, 9).

In West Bank, there is no clear information (specific statistics) about the percentage of cesarean section. In Rafedia Surgical Hospital in Nablus C.S was about 11% in the seventies and jumped to 13-14% in the eighties and nineties. From hospital record, the last 4 years this percentage has been about 14-15%. During the AL-AQSA Uprising in 2000-2004 this percentage remained the same till the incursion of Nablus city; the percentage jumped to about 21% as women demanded at their own choice or request caesarean delivery to avoid delay at check points (10).

Several studies have been devoted to searching for preoperative factors that may predict the level of postoperative pain. However, analysis of these studies reveals conflicting results. For instance, whereas some investigators (23) found a correlation between different characteristics of personality and postoperative pain, others did not find such a correlation (30).

2. Operative Techniques & Their is Time

When doing CS, several layers of the mother's abdomen need to be cut to reach the baby. After the baby's birth, the layers need to be closed up again. Different ways are used; non closure of visceral and parietal peritoneum at CS appears to have no adverse effects on immediate postoperative recovery. Several studies attempted to find the advantages of single layer closure of CS (31).

In 2002 a study was conducted at India Maternity Hospital, India 5000 women underwent CS in single layer closure technique and another 5000 cases (control group) had CS in the conventional method. Patients who operated with single layer have faster postoperative recovery, it decreases postoperative analgesic requirements, less pain, bowel function is restored easily and allows a simplified and were better able to take care of their babies. In a similar study in Arm Forces zonal hospital, 149 consecutive women scheduled for lower segment CS through pfannensteil were randomized to either closure (N= 71) or non-closure groups (N=78). There was significant reduction in operating and anesthesia time, febrile morbidity, return of bowel function and period of hospitalization amongst the non-closure group. There was no significant difference with regards to postoperative pain as assessed by VAS score and number of analgesic doses and wound infection (32).

In Dhaka Medical College Hospital of Bangladesh, 208 pregnant women underwent lower segment CS were either the closure and non-closure, the main outcome measures no detrimental effect in the immediate post-operative recovery period, length of operation time and hospital stay,

maternal pain as assessed by AVS scale and requirement for post operative analgesics (31,33).

In other randomized comparisons study of skin closure techniques in CS. The study compare the effects of skin closure techniques and materials on maternal outcomes and time taken to perform CS. Main result show only one small randomized controlled trial, involving 66 women, was included in the review. Frishman et al compared staples with absorbable sub-cuticular suture for closure following CS. While operating time was significantly shorter when using staples, the use of absorbable sub-cutucular suture resulted in less postoperative pain and yielded a better cosmetic result at the postoperative visit (34). Seven studies compared the operating time between the closure and non-closure groups, among the seven studies, six showed that, as expected, non-closure of peritoneum reduced the total operating time 10 minutes compared with closure (35). Most studies showed no difference in the other outcome measures including infection/febrile episodes, analgesia/anesthetics requirement, bowel function restoration, postoperative stay and adhesion fome byrmation (36). One cannot claim that non-closure is better than closure, or vice versa, however, any operation involving a body cavity, large joint surfaces or deep tissues should be regarded as painful (37). Although it may be possible to predict, to a degree, the amount of postoperative pain knowing the site and nature of the surgery (37).

3. Post Cesarean Section Analgesia

Post CS delivery pain relief is important; management of acute pain after CS has evolved considerably over the decade. Pain may also impair the mother's ability to optimally care for her infant in immediate

postpartum period and may adversely affect early interactions between mother and infant (38). The general approach to pain after CS is changing, shifting away from traditional opioids-based therapy toward a multimodal approach (39).

Multimodal pain therapy involves the use of potent opioids regimen, such as patient-controlled analgesia or neuraxial opioids, in combination with other classes of analgesic drugs (40).

In 2004 a study was conducted at Department of Obstetrics and Gynecology, to compare the use of diclofenac intramuscular single dose to decrease pain in post operative CS with none used diclofenac intramuscular. . Sixty-four (64) patients who underwent post operative Caesarean section in Ranong Hospital, participation included patients who had obstetrics complications such as pregnancy induced hypertension, placenta previa, twin pregnancy, and abruption placenta (41). This randomized, double-blind, placebo controlled study was conducted to study the analgesia efficacy in postoperative CS. The subjects were randomized by allocation to receive diclofenac intramuscular or placebo; both groups received morphine by Patient Controlled Analgesia (PCA). A single dose of diclofenac intramuscularly decreased the use of morphine during the in postoperative period of CS, but the level of pain did not differ (41).

Other study included patients at a large urban hospital who had caesarean deliveries, the patients were assigned to one of four pain management strategies that included (a) intramuscular meperidine, (b) PCA with intravenous meperidine, (c) intramuscular morphine sulfate, and (d) PCA morphine sulfate, 1,256 women participated in this study, in

comparing the median dose of meperidine, those who received it via PCA received a significantly higher dose than those who received it intramuscularly. The opposite was true with morphine sulfate. Patients who received meperidine via PCA had significantly fewer times when they rated their pain as moderate or worse (4 cm or greater on the VAS) when compared with patients who received intramuscular meperidine. The two groups who received morphine had significantly fewer times when they rated their pain as moderate or worse when compared with the meperidine group, regardless of route. Subjective responses to pain management were no different among the four groups. Women who received morphine for pain control were more likely to continue breastfeeding and more likely to allow rooming-in of their infants when compared with the meperidine groups. There were no significant differences in postpartum complications between the four pain management strategies (42). Choice of technique will also be influenced by the degree of training and expertise of the staff. The introduction of such techniques may yield increased benefits in the form of improved recovery and faster discharge from hospital with consequent reductions in the cost of health care (37).

4. Preoperative Anxiety and Postoperative Satisfaction in Women undergoing elective CS

Along with steadily increasing numbers of emergency and elective CS in western world (43), there has been an increasing awareness of psychological aspects of obstetrics (44).Whilst preoperative anxiety has been widely studied in many presurgical populations, the potential impact of anxiety on the experience of CS has not been thoroughly explored,

through it has been identified. Anxiety sensitivity is important in pain perception (45)

Given that presurgical anxiety serves as an important predictor of postoperative pain and recovery. Prenatal maternal anxiety may determine maternal pain experiences of CS (45).

Royal Hallamshire Hospital in UK was investigate whether preoperative anxiety in women underwent elective CS predicts postoperative maternal satisfaction with the process, perceptions of recovery, analgesic use or length of hospital stay, other factors that might influence postoperative satisfaction were also explored. Preoperative anxiety scores were comparable with those of general surgical/medical patients. Preoperative trait anxiety and state anxiety were inversely associated with postoperative maternal satisfaction. State anxiety was also inversely associated with better recovery Preoperative anxiety was not associated with analgesic use or length of hospital stay. Degree of satisfaction explained 52% with information from the anesthetist and emotional support from partner. Greater preoperative anxiety was the only variable that made an independent contribution to predicting clinically meaningful acute pain at 2 days after surgery (46). The successful management of pain from normal or interventional delivery is an important part of women's experience of childbirth (47). In a study of psychosocial influences on women's experience of planned elective CS psychosocial factors (expectations, control beliefs, anxiety sensitivity) as measured in mothers and birth partners before an elective CS. Study focused on the impact that these variables have on maternal fear and pain during and after delivery. Study show maternal fear responses varied during the operation,

in that fear was greatest at point of administration of the nerve block, within mother's preoperative negative expectations were related to fear experiences during delivery, which was in turn related to their postoperative pain. Maternal anxiety sensitivity was found to mediate the relationship between negative expectations of control over drugs predicted their postoperative pain (48).

5. Post CS Pain Prediction by Preoperative Experimental Pain Assessment.

Post cesarean section pain is a common cause of acute pain in obstetrics, yet pain relief and patient satisfaction are still inadequate in many cases. The study was conducted to determine whether preoperative assessment of experimental pain perception by quantitative sensory tests could predict the level of post cesarean section pain (49). Fifty-eight women who were scheduled for elective cesarean section were enrolled in the study. Heat pain threshold and magnitude estimation of suprathreshold pain stimuli at 44°–48°C were assessed for both algosity (the sensory dimension of pain intensity) and unpleasantness 1 or 2 days before surgery (50). The day after the operation, the women reported the level of pain at the surgical wound on a visual analog scale at rest and during activity. The study shows that a simple and quick preoperative test is useful in identifying those women who will experience greater pain after a cesarean section. This test may be suggested for caregivers to tailor the postoperative treatment to specific patient needs and to improve postoperative outcome and patient satisfaction (51).

6. Previous experience of surgery or have heard stories from friends and relatives that present the postoperative period in an unfavorable way

Childbirth is a normal physiological event with the potential to evoke a range of positive and negative experiences (47). Considerable attention is being focused on improving mother's positive experiences of childbirth and reducing those that are negative, as the latter can play a role in exacerbating various postnatal disorders (52, 53). The contribution of various factors (medical, psychological, social) to maternal outcome are gradually being investigated and incorporated into maternity care (54).

It is important to establish the expectations of the patient before surgery. Some may fear the unknown and others may have previous experience of surgery or have heard stories from friends and relatives that present the postoperative period in an unfavorable way (37). An adequate and friendly explanation in simple terms will often reduce anxiety and minimize misunderstandings about the nature and purpose of the proposed surgery (37). There are inconsistent findings on the importance of preoperative patient education and information regarding the surgical procedure (55), or preoperative local or systemic preemptive analgesia on the experienced postoperative pain (56).

Central Swedish county hospital conducted a study of women's experience of postoperative pain and pain relief after cesarean birth and factors associated with pain assessment and the birth experience. Study show Women reported high levels of experienced pain during the first 24 hours. Seventy-eight percent of the women scored greater than or equal to 4

on the Visual Analog Scale, which can be seen as inadequately treated pain. There was no difference between elective and emergency cesarean births in the levels of pain. In spite of high levels of pain, women were pleased with the pain relief. The risk of a negative birth experience was 80% higher for women undergoing an emergency cesarean birth compared with elective cesarean birth. Postoperative pain negatively affected breastfeeding and infant care (57).

7. Professional Care and Support from Midwives

Professional care and support from midwives can also reduce negative experiences of childbirth; expectations and a range of different emotions (negative and positive) are reported (58). Continuous labor support offers multiple benefits for mothers and infants. The type of caregiver that is the best support person in labor has not been identified. A critical review of the English language literature was conducted to describe the current state of knowledge on different types of labor support persons. Randomized trials and other published reports were identified from relevant databases and hand searches. Studies were reviewed and assessed by using a structured format. Eight randomized trials met the selection criteria for inclusion in this analysis. These trials investigated untrained and trained lay women, female relatives, nurses, lay midwives, and student lay midwives as labor support persons. Support by untrained lay women starting in early labor and continuing into the postpartum period demonstrates the most consistent beneficial effect on childbirth outcomes (59).

8. Psychological Factors (Birth Partners)

It is unclear what part birth partners; play in women's experience of childbirth. Some report that birth partners improve birth experiences (60).

Preoperative fear responses were subsequently found to be related to mother's postoperative pain, it seems inevitable that greater consideration of psychological factors that impact on women's experiences of a CS could have clinical benefit (25). Inadequate management of postoperative pain is common, and postoperative pain is a risk factor for prolonged pain. In addition to medical and technical factors, psychological factors may also influence the experience of postoperative pain (61). In addition to medical and technical factors, psychological factors may also influence the experience of postoperative pain. Studies exploring the relationship between emotional variables and postoperative pain have highlighted the influence of anxiety and depression (62, 63).

9. Nicotine Abstinence and Opioid Use for Postoperative Analgesia

Previous clinical studies have not examined the relationship between nicotine abstinence and opioid use for postoperative analgesia. This may be important because tobacco smokers are routinely required to abstain from smoking just before and during acute post-surgical recovery (63). There are no prospective, controlled clinical studies that have examined whether patients with different nicotine use/abstinence histories differentially self-administer opioids. A retrospective study did show that female smokers use more narcotic post-operatively than did females who never smoked (64). There was a study examined individual differences in IV morphine use (PCA) and analgesia among post CS patients who varied in nicotine use at

Johns Hopkins Bayview Medical Center. Pain measures were also evaluated to assess whether pain scores increased along with the predicted morphine utilization (65). Study show that a history of nicotine use and/or short-term nicotine abstinence can modulate morphine use and analgesia during post-operative recovery (65).

10. Problem Statement

CS rate has increased at an accelerated pace over the past two decades from 5% to 25% in the United States and some other countries. With repeated CS accounting for as much as 35% to 50% of the increased abdominal deliveries (66), during the AL-Aqsa Uprising (2000-2004) there is an increase in the percentage of caesarean deliveries (10).

During my work, I realized that women need more care especially post operative. Pain impairs the mother's ability to optimally care for her infant in the immediate postpartum period and may adversely affect early interactions between mother and infant. Good pain relief will improve mobility and can reduce the risk of thromboembolic disease, which is increased during pregnancy. There are many factors affecting pain intensity post caesarean section such as type of anesthesia, type of gender, weight of baby, pre-idea about pain preoperative, psychological support of family member and medical staff (59). Pain and anxiety may also reduce the ability of a mother to breast-feed effectively (56). It is necessary that pain relief be safe and effective, i.e. it does not interfere with the mother's ability to move around and care for her infant, so it will not result in having adverse neonatal effects in breast-feeding women.

Family members often go through the same emotion that the patient passes through. In addition, long stay in hospital is considered costly. Paying attention to these factors has important implications for health systems from the standpoints of economics, morbidity, mortality and patient satisfaction. For this reason need to identify risk and predisposing factors affecting pain intensity in women undergoing CS in Palestine.

11. Objective

The objective of this study:

Is to evaluate the associations of several factors with postoperative pain in women undergoing CS. These factors are family member, medical staff, Length of operation and its technique, residence, socio-economic status, bad events and complication after CS e.g. bleeding, anti- natal follows up, way of reflection, previous experience of pain and baby sex and size.

12. Hypotheses of the Study

The study tested the following hypotheses and all hypotheses were tested at α=0.05:

1- There is a significant relationship, at the significant level (0.05), between the pain intensity and source of information and previous experience of pain.

2- There is a significant relationship, at the significant level (0.05), between the pain intensity and family support to decrease pain.

3- There is a significant relationship, at the significant level (0.05), between the pain intensity and length of operation and its technique of cesarean section.

4- There is a significant relationship, at the significant level (0.05), between the pain intensity and medical staff (doctor, nurse, and anesthetist).

5- There is a significant relationship, at the significant level (0.05), between the pain intensity and ambulation post CS.

6- There is a significant relationship, at the significant level (0.05), between the pain intensity and effect of baby sex and size

7- There is a significant relationship, at the significant level (0.05), between the pain intensity and place of living.

8- There is a significant relationship, at the significant level (0.05), between the pain intensity and place of residence, socio-economic status.

9- There is a significant relationship, at the significant level (0.05), between the pain intensity and the occurrence of bad events to the patient.

10- There is a significant relationship, at the significant level (0.05), between the pain intensity and number of pregnancy and anti natal care.

11- There is a significant relationship, at the significant level (0.05), between the pain intensity and smoking.

12- There is a significant relationship, at the significant level (0.05), between if the pain intensity and drinking of tea, coffee.

13- There is a significant relationship, at the significant level (0.05), between pain intensity and route of pain med used.

13 Limitation of the Study

The current study faced a number of limitations which can be summarized as the following:

1- Strike at Ministry of Health especially in hospitals which lead to decreasing in the number of cesarean deliveries.

2- Lack of routine evaluation of pain and clear documentation.

3- There was not enough co-operation and concern by hospital staff.

4- Difficult in commuting to hospitals, because of Israeli check points.

Chapter Three

Methodology

3.1 Study area and sample

3.1.1 Study of Area

The study was conducted during the period from February-March, 2007. It was implemented in three governmental hospitals in the cities of Nablus, Jenin and Ramallah. The patient questionnaire (see Appendix C) was conducted through face to face interviews; other information was collected from patient's files. Table 3.1 summarizes the collected data.

Table (3. 1): Basic Characteristic of Sample Hospitals.

Hospitals	Ownership	Number of patients	Length of Stay day	Analgesia used post CS		
				Analgesia	Doses	%*
Rafedia	Public	85	2	Pethidine Rufenal	100mg 75mg	76.9% 98.3%
Jenin	Public	140	2	Pethidine Rufenal	100mg 75mg	1.4% 99.4%
Ramallah	Public	80	3	Pethidine Rufenal	100mg 75mg	80% 98%

***Pethidine just given within 6 hours post CS, but patients who have problem from Pethidine; Rufenal given instead of it, in addition some patients last 6 hours of staying in hospital don't take any analgesia.**

3.1.2 Sample of study

Eligibility

Three hundred and twenty eight women undergoing general anesthesia for caesarean section were included in a prospective, consecutive, multicentre, cross-sectional study.

Gender Eligible for Study: Female

Population of this study consisted of females who were undergone caesarean section under general anesthesia in governmental hospitals during February-March, 2007. Convenience sampling is used in this study; they were 328 ladies, 305 ladies were accepted (represent about 93% the population) and 23 refused (represent about 7% the population) in purposeful way according to the following criteria:

1- No clear schedule when to administer GA for caesarean section.

2- All emergency CS do general anesthesia.

3- Strike in governmental hospitals.

Criteria

Inclusion Criteria:

- Pregnant women elective (malpresentation, previous two caesarean section, placenta previa centrals and multiple pregnancy, or emergency fetal distress, bleeding, cord prolapsed and failed progress of labor) and non elective for cesarean delivery.
- Able to performed consent.
- Standardize GA.

Exclusion Criteria:

- Vaginal delivery.
- Unable to perform informed consent.
- Spinal anesthesia.

Anesthesia:

- The drugs has been given to women pentothal 25 mg/kg, triculam0.05mg/kg, succinylcholine 1-1.5mg/kg, fentanyle 150-200mic/kg and 1 mg atropine- 25µg neostagmine sometimes used inhalation halothane.

Operative Technique:

- Transverse incision, 15-17cm long, made 3cm below the anterior superior iliac crests**.**
- The uterus was closed by single layer vicryl, exclusion have peritoneal problems.

3.2 Ethical Consideration:

The study was performed in accordance with the Declaration of Helsinki and it was approved by the Research Ethic Committee of the Faculty of Graduated Students at An-Najah National University, Palestine. A formal letter from the Vice President Office for Academic Affairs at An-Najah National University was sent to the Ministry of Health requesting the Director of General Research For Planning and Development to allow the researcher to conduct the study.

Explanatory form: every eligible manager of the hospital was given a full explanation about the research including purpose, nature of study importance of participation in addition to an assurance of confidentiality of information and voluntary participation; they were totally free to accept or reject participation in the research. All patients were given information before considering participation in the study. It was made clear that

participation was voluntary, could be terminated at any time and that confidentiality was guaranteed. For that reason, the ethical dilemma was deemed to be small.

The patient's integrity may be threatened when performing continuous data collection. The results were presented in a way that ensured that it was not possible to identify any of the individuals. The study protocol concentrates on the patients' health and well-being. It is important to know the incidence, intensity and factors affecting pain intensity of CS so that the affecting factors can be addressed.

To burden the patient with questions concerning postoperative symptoms takes time and strength. However, patients feel that they receive more attention and this could be regarded as positive. Further more, identification of affecting factors on pain intensity as seen from the patients' perspective, and not the factors that we expect could lead to improvement in the postoperative care for other patients in future.

We knew that volunteers would experience discomfort. This was an ethical dilemma; the experiment could be stopped at any time on the request of the volunteer.

3.3 Framework of Study Methodology

This study was based on a quantitative statistical assessment of the impact of factors affecting pain post caesarean section.

1- Role of family member (e.g. husband, mother…ect) for pain intensity illustrated in items [Q30, Q31 see Appendix B]

2- Role of medical staff (doctor, nursing, anesthetist) illustrated in items [Q32, Q33 see Appendix B].

3- Length of operation and its technique (cautre, suturing…etc) illustrated in items [Q17, Q19 See Appendix B].

4- Socio-economic status and residence role in pain are illustrated in items [Q3, Q4, Q7, Q8 See Appendix B].

5- Bad events following CS illustrated in items [Q35, Q36].

6- Effect of anti natal follow up on pain intensity illustrated in items [Q10 see Appendix B].

7- Effect of the way of reflection pain on pain intensity [Q22 see A appendix B].

8- The effect of previous experience of pain on pain intensity [Q20 Appendix B].

9- Baby gender and weight are illustrated in items [Q18, Q27, Q28 see Appendix B].

Figure (5): Conceptual Framework with factors affecting pain intensity post caesarean section

3.4 Survey Instrument

Tool of the study is a questionnaire which was developed to collect the needed data, and it was distributed over the research community; it is divided into two parts: part one concerns demographic data, part two deals with the independent variable effect on pain intensity post CS.

The questionnaire revealed a wide range affecting factors and was judged by the patient to give us adequate information about their affecting factors on pain intensity. It was easy to complete within a short period of time. All patients answered a question about the appropriate and gave a correct picture of their experience by 98% of the patients. The test-retest correlation coefficient was α=0.68.

We had a high response rate (93%) and the questionnaire was deemed by the patients to give us adequate information about their affecting factors on pain intensity. There was diversity of factors reported by the patients, indicating that the questionnaire was valid. The extent and completeness of the response to questionnaire are important for external validity (67). Factors that contributed to a high response rate were surveillance early in the postoperative period rather than late (68).

Recall bias could be a problem (69). In the present study assessment of the affecting factors on pain intensity was made close to the time of the surgery, i.e. eight hours after surgery. The questionnaire ended with a question where patients were asked if they thought that their answers gave a correct picture of their symptoms, 97.4% of the patients answered "yes”. An open question at the end gave the patients the chance to elaborate. The

questionnaire was pre-tested to test clarity, instructions and completeness of the questions and usefulness in the clinical situation (67). The subjects and technique used were close to those planned for in the main study. Closed questions were deliberately chosen because it was important that a questionnaire should be quick and easy to complete to encourage a high response rate (70).

3.5 Procedure:

Patients were informed verbally on the day of operation and consent was obtained. Questionnaire was filled out 8 hours after full recovery as all patients nearly were fully conscious by this time (during 24-48hrs length stay in hospital).

3.6 Design of the Study:

Quantitative, observational, consecutive, prospective cross-sectional study.

3.6.1 Independent variables are:

1. The Name of the hospital
2. Age
3. The qualification
4. The place of living
5. Weight
6. Height

7. Income
8. Profession
9. No. of pregnancies
10. Anti natal care
11. Smoking history
12. Drinking tea
13. Drinking coffee
14. Way of admission
15. No of caesareans
16. Cause of caesareans
17. Length of time of caesareans
18. Baby weight
19. Type of stitches
20. Pain history post caesareans
21. Pain severity (dependent variable).
22. Way of pain reflection
23. Route of pain medicine used
24. Time between analgesic & relief of pain
25. Do you have pre idea about sever pain
26. Source of information
27. Baby gender
28. Ambulation post caesareans

29. Did you have family support to decrease pain?

30. Who gave you support?

31. Did the health team played role to decrease pain

32. Nurse approach to decrease pain & fatigue

33. Bad events post caesareans that had effected pain

34. Bad events related to you directly

35. What are the main factors that affect pain intensity and treatments?

36. Did the author get a correct picture of the patients' symptoms that are?

3.7 Pilot Study

None of the available assessment forms were sufficient for the purposes of our study, so the author developed a specific assessment form for the study (appendix C).The Questionnaire was tested and validated to assure an understanding of the meanings of presented concepts, clarity of statements, and adequacy of the representation of basic variable categories specifically, readability and comprehension were key concerns given that many of the questionnaire respondents (patients) would have low level of education.

The questionnaire was given to 13 people, 4 specialists of Gyne-obstetrician, 4 qualified midwives, 4 registered nurses and 1 advisor who have research background who were asked to judge whether or not the questions were appropriate and reasonable. After some changes the questionnaire was considered valid.

3.8 Questionnaire reliability & validity

3.8.1 Reliability

The reliability is major criterion for assessing its quality and adequacy. It is the consistency or accuracy with which an instrument measures an attribute, there are three types of reliability:

1- Stability.

2- Internal consistency.

3- Equivalence.

1- Stability aspect of reliability, which concerns the extent to which an instrument yields the same results on repeated administrations, is evaluated by test-retest procedures.

The reliability of the scale in this study was estimated by using test-retest due to independent variable.

Ten ladies who performed CS under GA in the January 2007, were given the questionnaire, after 48 hours; at a later time, they were given the same questionnaire test-retest done.

2- Internal consistency aspect of reliability, which refers to the extent to which the entire instrument items are measuring the same attribute, and Cronbach's Alpha is the most common test used in nursing research

The reliability of scale in this study was estimated using Cronbach's Alpha formula to determine mean interim correlation. The questionnaire reliability was at **α =0.68.**

3.8.2 Validity

The validity is the degree to which an instrument measures what it is supposed to be measuring.

3.9 Analysis Tool

One questionnaire was completed; after finished gathering questionnaire data were entered into the SPSS an advanced statistics package utilized for descriptive and multivariate analysis.

3.9.1 Used Statistical Analysis

The various statistical analysis tools in this research were as follow:

1- Frequencies and percentages.

2- Chi-square test to examine significance statistical differences in pain intensity with factors affecting pain post c-section.

3- Correlation coefficient procedure to determine the strength of the relationship among variables, in the hypothesis.

4- Multiple comparison analysis.

5- Cronbach alpha test to examine the reliability of data.

6- Microsoft Office Excel.

3.10 Analysis Data

One level of measurement of the variables has been identified; quantitative data can be analyzed by using descriptive and inferential statistics (67).

3.10.1 Descriptive statistics

Describe the characteristics of the sample; including frequency distributions, and measures of dispersion (67, 70).

3.10.2 Inferential statistics

Are those statistical tests are used for testing hypothesis.

The two types of inferential statistical tests are parametric and nonparametric (67, 70).

Nonparametric statistical tests are used with nominal or ordinal data, a small sample size, or when the group is not normally distributed.

Parametric statistical testes are used when the data are at the interval or ratio level, the variable being measured in the sample is normally distributed in population to which you plan to generalize your findings, and the sample size is adequate (67).

3.11 Data Collection

We had a response rate 93%.The data were completely collected after the patients answered them; in addition, the patients' files were checked to confirm the data. Figure 5 shows the distribution of samples in the above mentioned hospital.

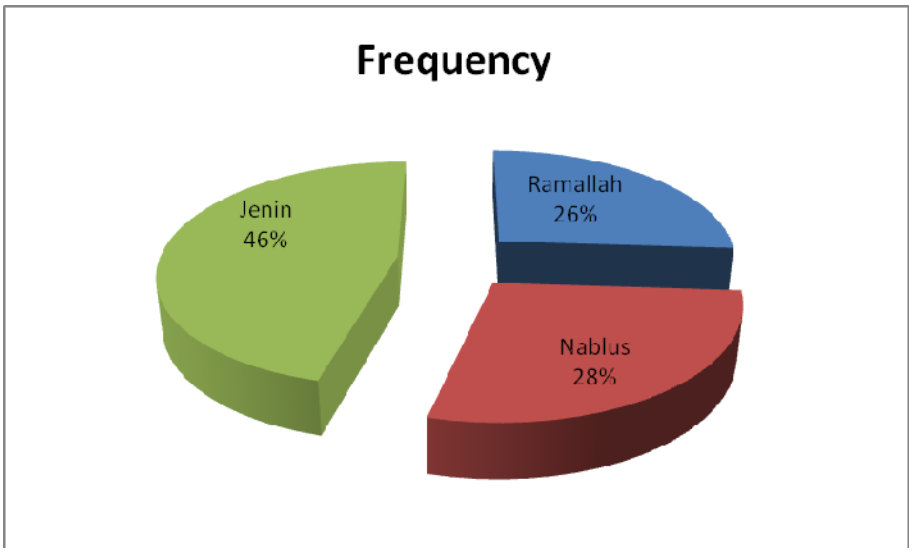


Figure (6): Distribution of samples in governmental hospitals

Chapter Four

Results

4.1 Demographic data

Table (4.1): Distribution of study samples according to patient age, qualification, profession, height and weight.

Variables		Frequency	Valid percent%
Patient age			
Valid	**<20**	41	13.4
	20-35	196	64.3
	36-45	61	20.0
	>45	**7**	**2.3**
	Total	305	100
Qualification			
Valid	**Elementary**	**109**	**35.7**
	Tawjihi	**135**	**44.3**
	BA	56	18.4
	MA & Above	5	1.6
	Total	305	100
Profession			
Valid	**Housewife**	**255**	**83.6**
	Governmental emp.	21	6.9
	Private employee	29	9.5
	Total	305	100
Height (cm)			
Valid	**140-160**	25	8.2
	141-170	260	85.2
	171-180	20	6.6
	>181	0	00
	Total	305	100
Weight (kg)			
Valid	**60-70**	51	16.7
	71-80	198	64.9
	>81	56	18.4
		305	100

It is clear that 64.3% of studied samples are of age 20-35 years old. 2-3% of women of study are of age >45 years old. It is clear also that less than 18.4% of them hold BA. 83.6% of those women are housewives.

Table (4.2): Distribution of study samples according to smoking, # tea cups and #coffee cups.

Variables		**Frequency**	**Valid percent%**
Smoking			
Valid	**Non**	281	92.1
	<5cig	**19**	**6.2**
	5-10 cig	**4**	**1.3**
	11-20 cig	**1**	**0.3**
	Total	**305**	**100**
Number tea cups			
Valid	**One cup**	125	41.0
	2-4 cups	**141**	**46.2**
	>4 cups	**29**	**9.5**
	None	10	3.3
	Total	305	100
Number coffee cups			
Valid	**One cup**	123	40.3
	2-4 cups	88	28.9
	>4 cups	**44**	**14.4**
	None	50	16.4
	Total	305	100

The study showed that 92.1% of women are non-smokers and 46.2% of them drink 2-4 cups of tea daily,while 14.4% drink more than 4 cups of coffee daily.

Table (4.3): Distribution of study samples according to hospitals names, place of living, way of admission and monthly income.

Variables		Frequency	Valid percent%
Hospital			
Valid	**Ramalla Hospital**	80	26.2
	Nablus Hospital	85	27.9
	Jeniene Hospital	**140**	**45.9**
	Total	305	100
Place of living			
Valid	**City**	87	28.5
	village	**141**	**46.2**
	Camp	77	25.2
	Total	305	100
Way of admission			
Valid	**Elective**	108	47.9
	Emergency	**71**	**23.3**
	Transfer to Hospital	21	6.9
	Transfer from special	105	34.4
	Total	305	100
Monthly income (NIS)			
Valid	**>1000NIS**	51	16.7
	1001-2000NIS	198	64.9
	<2001NIS	56	18.4
	Total	305	100

About 45% of women of the study are from Jenin hospital. It is noticeable that 46.2% of our sample came from villages (table 4.3). It is clear also that 23.3% of cases were admitted as an emergency. Women's incomes were found in the range of 1000-2000NIS.

4.2 Independent variable affecting pain intensity post CS.

Table (4.4): Distribution of study samples according to antenatal care and number of pregnancy, # CS and reason of CS.

Variables		Frequency	Valid percent%
Antenatal care			
Valid	**Special clinic**	**124**	**40.7**
	Health center	104	34
	GP clinic	6	2.0
	MCH clinic	71	23.3
	Total	305	100
Number of pregnancy			
Valid	**Once**	49	16.1
	2-3 pregnancy	101	33.1
	4-5 pregnancy	85	27.9
	>5preg	**70**	**23.0**
	Total	305	100
Number of CS			
Valid	**Once**	130	42.6
	2-3CS	138	45.2
	4-5CS	30	9.8
	>5CS	**7**	**2.3**
	Total	305	100
Reason of CS			
Valid	**Elective**	149	48.8
	Urgent	**133**	**43.6**
	Others	23	7.6
	Total	305	100

From table 4.4 It is surprising that 43.6% of women has C.S as urgent.

Figure (7): Distribution of length of time of CS operation in hours.

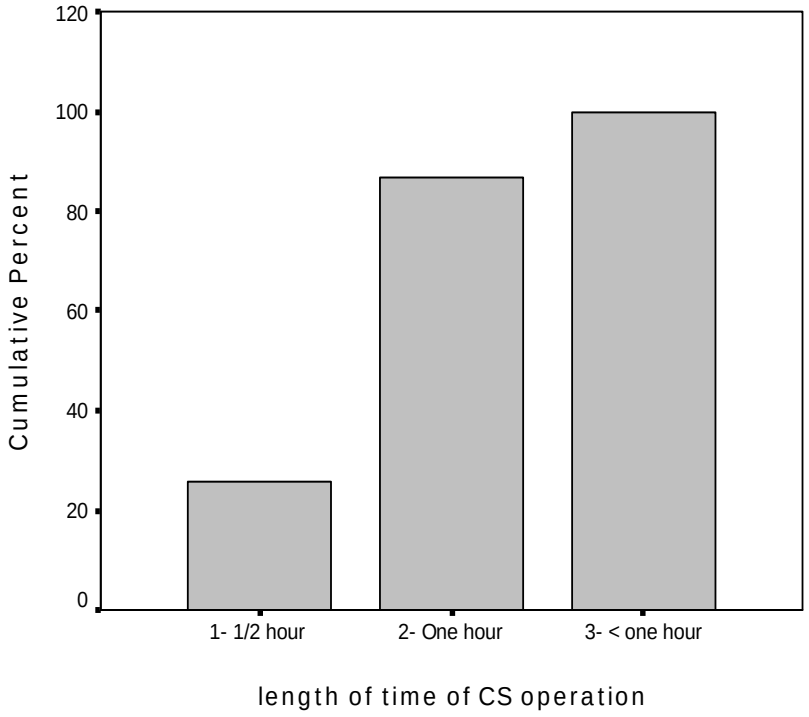


Figure (8): Distribution types of stitches (skin closure).

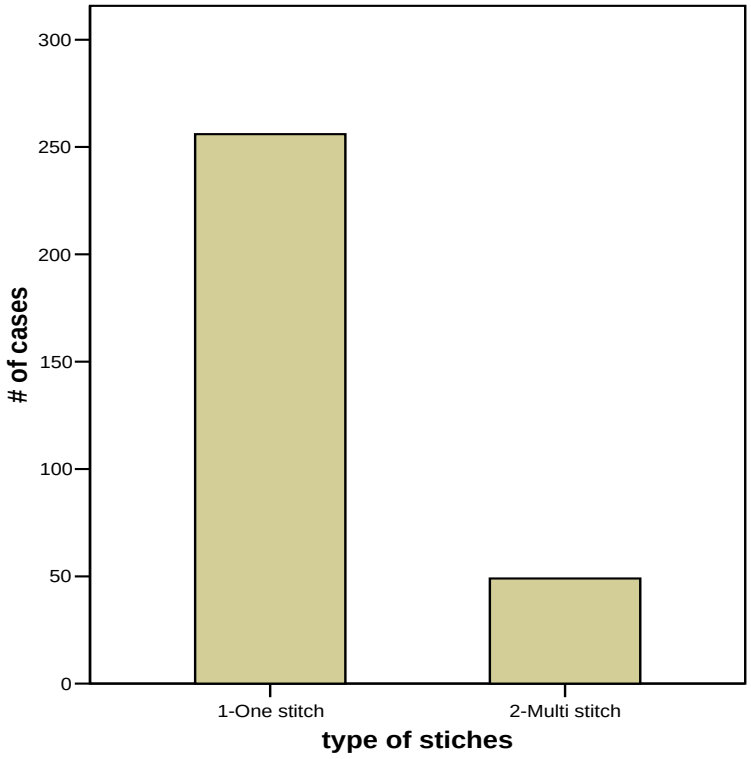


Figure (9): Distribution of ambulation post CS in hours.

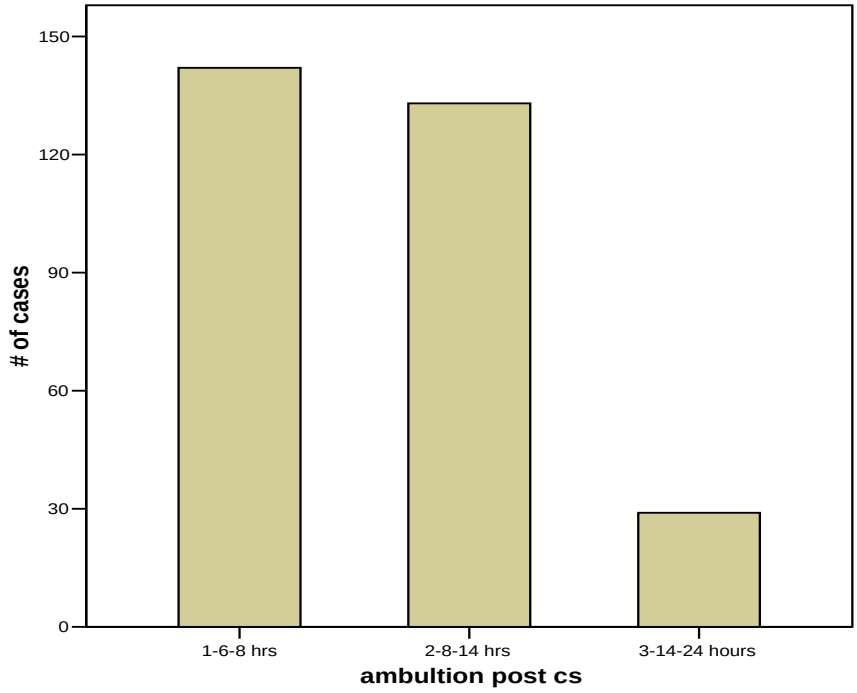


Figure (10): Distribution of study sample source of information about pain

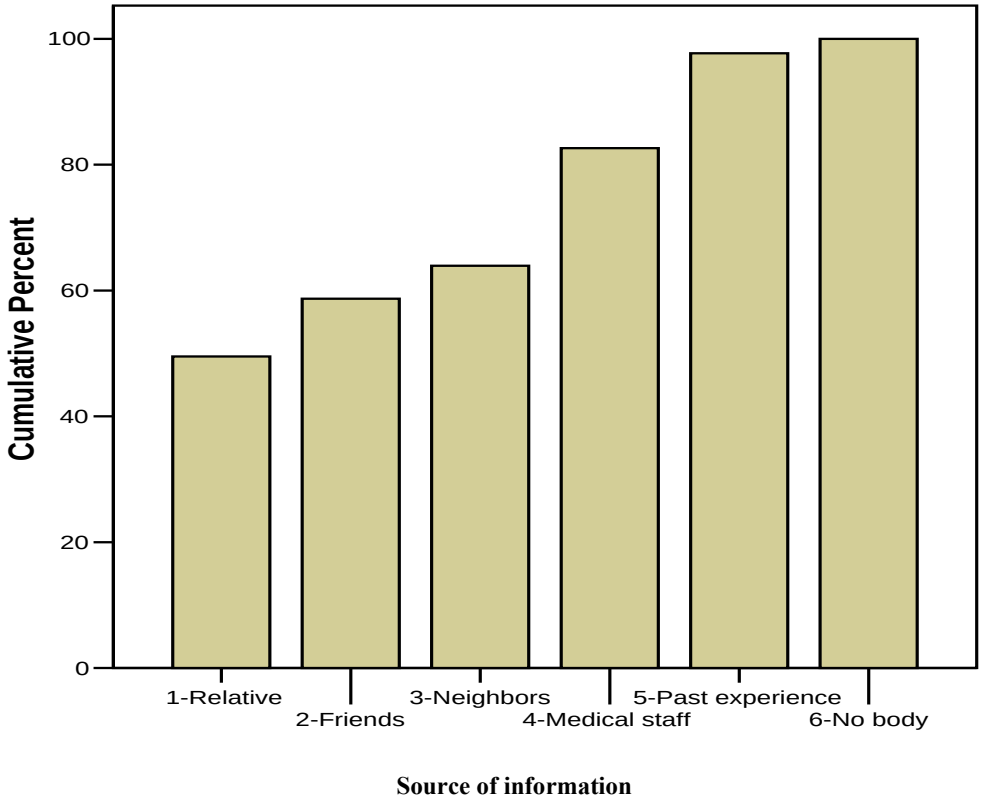


Figure (11): Distribution of study sample route of pain medication

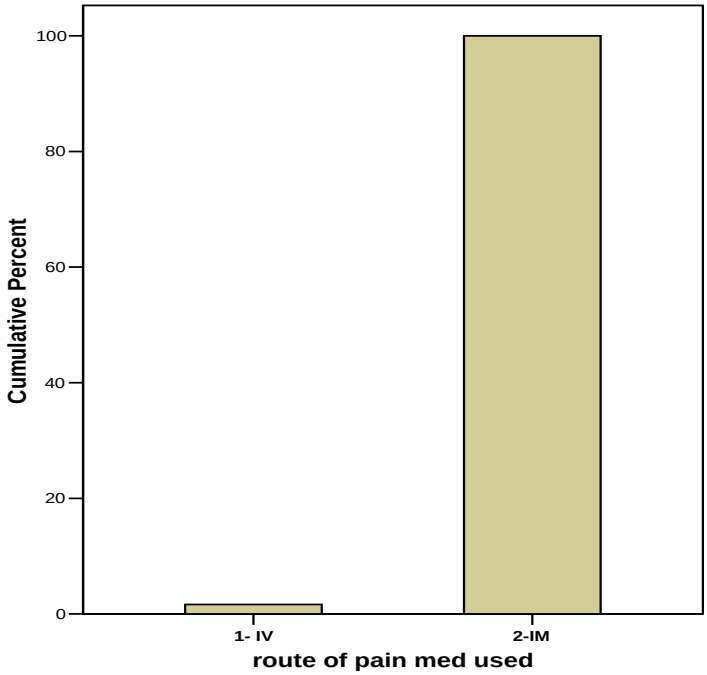


Table (4. 5): Pain intensity and bad events.

Variables		Frequency	Valid percent%
Did you have a bad events post CS that affect pain intensity			
Valid	**Yes**	116	38
	No	189	62
	Total	305	100
Bad events related to you directly			
Valid	**Bleeding**	37	9.3
	Death of baby	22	5.5
	Family member had bad events	8	2
	Wound infection	32	8
	Others	301	75.3
	Total	305	100

34.3% of cases had bad events post CS that may affect pain intensity.

Table (4.6): Is there relationship between baby gender, weight and pain intensity.

Variables		Frequency	Valid percent%
Is there relationship between baby gender pain intensity			
Valid	**Yes**	54	17.7
	No	**251**	**82.3**
	Total	305	100
Pain increase with deliver of baby			
Valid	**Male**	**37**	**12.1**
	Female	18	5.9
	No relationship	250	82.0
	Total	305	100
Baby weight			
Valid	**1.5-2.5kg**	34	11.4
	2.5-3.5kg	174	57.0
	3.5-4kg	73	23.9
	>4kg	**24**	**7.9**
	Total	305	100

80% of patients had no relation between genders of baby and pain intensity. From the third part of table **4. 6** above the percentage of babies delivered above 4kg macrocosmic are **7.9%.**

Table (4.7): Did support of family and medical staff play a role in decreasing pain intensity.

Variables		Frequency	Valid percent%
Did family support play a role in decreasing pain intensity			
Valid	**Yes**	293	96.1
	No	12	3.9
	Total	305	100
Source of support			
Valid	**Husband**	**198**	**64.9**
	Son	10	3.3
	Relative	93	30.5
	Friends	1	0.3
	Neighbors	3	1
	Total	305	100

Variables		Frequency	Valid percent%
Did health team support play a role in decreasing pain intensity			
Valid	**Yes**	285	934
	No	20	6.6
	Total	305	100
Nurse approach with pain			
Valid	**Excellent**	**72**	**23.6**
	Very good	**75**	**24.6**
	Good	**95**	**31.1**
	Not bad	59	19.3
	Very bad	4	1.3
	Total	305	100

96.1% of cases have family support, **64.9%** of them got support from husband, **93.4%** of cases declared that health team support played a role in decreasing pain intensity, the nurse Approach with pain was excellent on the cases **23.6%, 24.6%** was very good, and **31.1%** was good.

Figure (12): Factors that affect pain intensity and treatment.

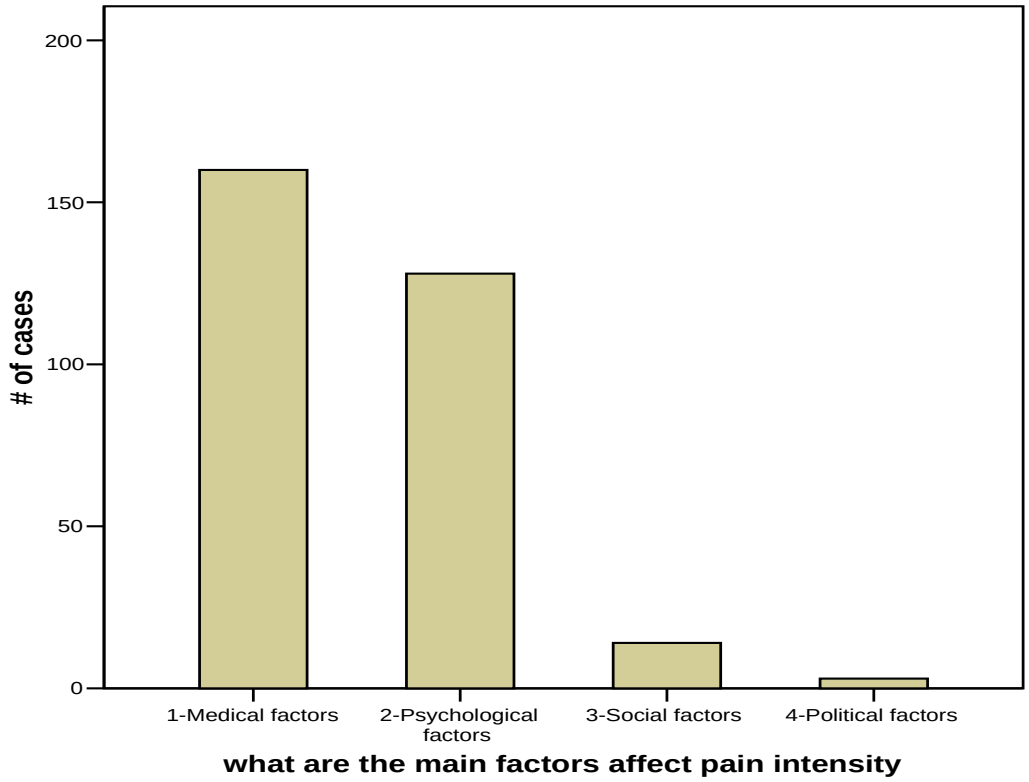
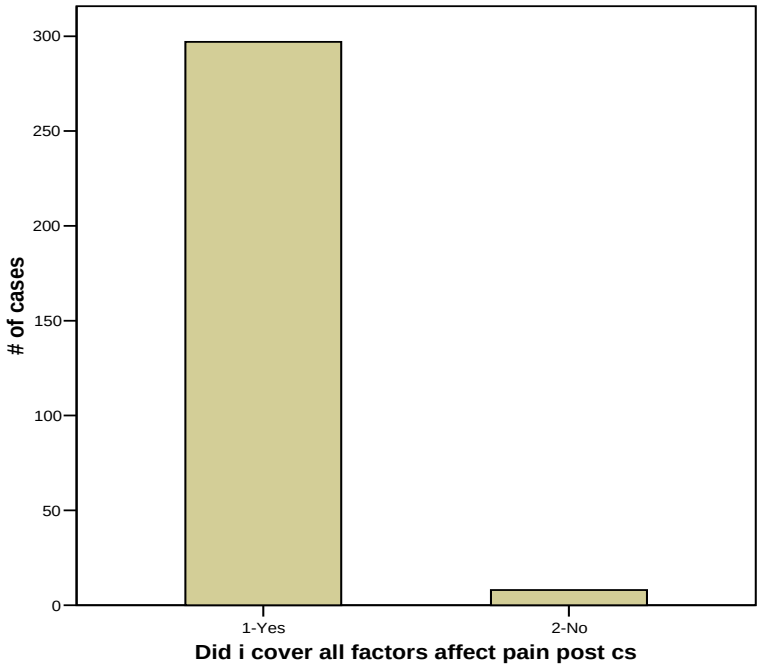


Figure (13): Did the patient think that their answers gave a correct picture of factors affecting pain intensity post caesarean section?



97.4%. Of the patients answered yes

4.3 Result in Summary:

At power of 0.05 there were significant statistical differences between pain intensity and the following variables, source of information, pain history post caesarean section, length of operation, type of stitches, nurse approach with pain, way of pain reflection, ambulation post caesarean section, have bad events related to them directly.

However, at the same power, there were no significant statistical differences between pain intensity and the following variables, family support, baby weight, baby gender, health team, place of living, profession, income, qualification, anti-natal care, number of pregnancy, smoking, drinking tea, drinking coffee, route of medication used.

The following table will show the significant and non significant factors affecting pain intensity:

Table (4.8): Significant and non significant factors affecting pain intensity.

No	Significant variables	Non significant variables
1	Source of information about pain from non medical staff.	Family support
2	Previous experience of pain.	Who gave support
3	The length of time of OP 30 mints.	If health team played role
4	Type of stitches- one stitch	Weight of the baby
5	Nurse approach with pain	Baby gender
6	Early Ambulation post caesarean 6-14hrs	Type of gender
7	Way of pain reflection	Place of living
8	Bad events post CS	Qualification
9	Events related to the pat. directly when baby admitted to neonate.	Profession
10		Income
11		Idea about severe pain
12		Antenatal care
13		Route of pain
14		Smoking
15		No. of tea cups
16		No. of coffee cups
17		No. of pregnancy
18		Age

Second step of analysis to quantify the effect of each of these nine significant variables on the intensity of pain by using multiple comparison analysis.

Pain severity is divided into two parts, part one (mild and moderate), second part (severe and very severe). The experiment result in a 2X 9 table with the column totals fixed at 231, shown in Table 4.9.

Table (4.9): Distribution of significant factors affecting pain intensity.

	Source of information	previous experience of pain..caesarean	The length of time of OP	Type of stitches-one stitch	Nurse approach with pain	Early Ambulation post caesarean	Way of pain reflection	Bad events post CS	Events related to the pat. Directly
Sever pain	154	154	154	154	154	154	154	154	154
Very sever pain	77	77	77	77	77	77	77	77	77
Total	231	231	231	231	231	231	231	231	231

The 2 X 9 classification in Table 4.9 describes a situation in which the chi-square test independence is equivalent to a test of the equality of c = 9 binomial proportions so $f_1 = f_2 = f_3 = \ldots\ldots\ldots = f_9$, tests of this type are called test of homogeneity and used to compare several binomial populations see Appendix A.

Chapter Five

Discussion Findings

5. Discussions of the Results

The aim of this study is to find the factors affect pain intensity post CS. I have divided the factors into two main parts; the first one is demographic data, while the second is independent variable factors.

5.1 Demographic Data

There was no relation between demographic data and pain intensity, socioeconomic status, the level of education, age qualification, profession, living of place and monthly income of the family. However the 46.2% of CS were among patient coming from villages; it is probably due to patients demand to avoid delay on check points see Appendix A part demographic data.

5.2 Independent variables affecting pain severity post CS

5.2.1 Operative Technique & Their is Time

Caesarean section is a very common surgical procedure worldwide. Suturing the peritoneal layers at caesarean section may or may not confer benefit, hence the need to evaluate whether this step should be omitted or not (71). In our study technique and time of operation showed that it is a significant; one stitch is associated with severe – very severe pain , 30 minutes length of time and more is associated with severe- very severe pain , operation time from 30-60 minutes represent 61% of pain. In a study of Closure versus non-closure of the peritoneum at caesarean section showed that there was improved short-term postoperative outcome if the peritoneum was not closed and the number of postoperative analgesic doses was reduced in the peritoneal non-closure (71). Anther study showed there

is no conclusive evidence about how the skin should be closed after caesarean section, while operating time was significantly shorter when using staples, the use of absorbable sub cuticular suture resulted in less postoperative pain and yielded a better cosmetic result at the postoperative visit (34).

A study of caesarean section in Bangladesh, result showed that there was no significant increase in febrile morbidity, antibiotic usage, length of hospital stay or return of bowel function in the non-closure group. On the other hand, non-closure group had less post operative analgesic requirements, difficulties with some bowel function and no extra hospitalization time (31). A few studies were also done in this respect. Pietrantoni (1991) kept only the parietal peritoneum open in a study of more than 200 women and found no differences with controls in post operative complications (73). Hull (1991) in a study of more than 100 cases reported shorter operation times, less pain, less oral analgesia and less bowel stimulant administered when both peritoneum are left open. No adverse effects on immediate post operative recovery were found (35). Other study in India, showed that patients operated in non closure had faster post-operative recovery and are better able to take care of their babies, and group mean operative time was 23 minutes, operative blood loose was minimal, IV fluid requirement was less, ambulation was earlier (32). The decrease in the operation time with non-closure of the peritoneum was associated with less anesthesia time and less wound exposure to the environmental contaminants (74). A study of closure of laparatomy incision with or without peritoneal suturing showed the difference of 7 minutes in operation time between two groups is statically significant, the

benefits here include decreased anesthesia and operating room costs, personal time and expense, and suture costs (74).

Seven studies compared the operating time between the closure and non-closure groups, among the seven studies; six showed that, as expected, non-closure of the peritoneum reduced the total operating time by up to 10 min compared with closure. Most surgeons would agree that shortening an obstetric or a gynecological procedure by 5–10 min did not significantly influence the pain and outcome or post-operative recovery (33, 75).

5.2.2 Psychological Factors (Birth Partners, Anxiety and Previous experience, Bad events)

Psychological support is very important in any situation but when a person is suffering from pain, he/she needs more support (76), in our study 42.0% represents psychological factors, and psychological bad events associated with severe – very severe represents 67.5% so family members and medical teams needed to play good support. Husband represents 64.9% who support post CS from family members, even that there was no significant relationship between pain severity and who gave support post. Social workers play an important role in psychological support, but unfortunately they are not available in our governmental hospitals.

A study effect of fathers' attendance to labor and delivery on the experience of childbirth in Turkey showed that fathers' support in birth helped mothers to have more positive experiences in all aspects of childbirth. There was no relationship between fathers' support and pain intensity, length of labor, use of pain-relieving drugs, or obstetric

interventions in birth. When mother and father were supported during labor and delivery, the rate of the fathers who adopted an active role was high (77). Other study agreement that husband not effect pain intensity during labor, the results of this study carried out on 98 British subjects giving birth in hospital, show that the presence of the husband, or chosen birth companion, was not significantly associated with any difference in the perceived intensity of the subjects' labor pain. 78 subjects were accompanied in labor, 60 of who reported that they found their husband's presence at the birth helpful. These subjects had significantly lower levels of pain when compared with all other subjects, i.e. subjects whose husbands were present at the birth, but who were not reported as being of help, and subjects whose husbands were absent (78). A study in Hong Kong showed that women whose husbands were present during labour used significantly higher dosage of analgesia than those whose husbands were absent. No significant differences were found between groups in labor pain or other outcome measures (79). In our study 99% of patients had previous experience of pain postoperative. In Chicago a survey of 250 US adults who had undergone a recent surgical procedure asked about their postoperative pain experience. Approximately 80% of patients experienced pain after surgery. Of these patients, 86% had moderate, severe, or extreme pain. Additional efforts are required to improve patients' postoperative pain experience (76).

Keogh found that psychosocial factors were associated with experiences of CS, both during and following the event. Mother’s negative expectations, anxiety sensitivity and fear responses were found to be important, as were birth partner’s fear responses. Furthermore, the role that such psychosocial factors had on mother’s CS experiences was dependent

on the type of experience being measured; psychosocial factors were associated with maternal fear responses during and following the event, whereas they were only related to postoperative pain, and not pain experiences during the operation (48). In UK a study showed that lower preoperative anxiety and pain was associated with greater maternal satisfaction with elective caesarean section and better recovery. Information provided by anaesthetists and perceived emotional support are also of importance. It may be possible to identify women with high anxiety and facilitate satisfaction and recovery through providing additional supportive input (46). Other study in UK by this study the impact of cesarean birth on women's psychological well-being is highlighted. Enhanced communication during labor and delivery, and preparation or education on issues surrounding cesarean section, can reduce pain, distress and improve women's satisfaction with birth (80).

5.2.3 Professional Care and Support from Midwives & Nurses

Professional care and support from midwives and doulas can also reduce negative experiences of childbirth, especially during labor/delivery, when fears, expectations and a range of different emotions (negative and positive) are reported (48). Medical factors represent 52.5% in this study, health team contributed 93.4% in the decrease of pain severity post CS, and nurse approach with pain and is significantly associated with severe – very severe pain; that prerequisites the need to improve health team to better deal with pain through pain management courses. A study of pain and women's satisfaction with the experience of childbirth show that the influences of pain, pain relief, and intrapartum medical interventions on

subsequent satisfaction are neither as obvious, as direct, nor as powerful as the influences of the attitudes and behaviors of the caregivers (81).

In our study (91%) of the patients showed were satisfied with their care, (94%) postoperative pain intensity and (98%) they were treated by the physicians and nurses. Patients with low postoperative pain ratings who perceived that the physicians and nurses showed concern with how much pain they were feeling reported greatest satisfaction with their care ($p<.001$). In general, lower postoperative pain ratings were the best predictors of satisfaction and helpfulness of treatment. Preoperative pain status, expected level of postoperative pain, and time waiting for pain medication after a request was made were not significantly correlated with ratings of postoperative pain or satisfaction. These results highlight the important influence of adequate treatment of postoperative pain and perceived concern by the hospital staff on patient satisfaction (82). In Taiwan a study of preoperative nursing intervention result show that preoperative nursing intervention for pain has positive effects for patients undergoing abdominal surgery (84). Other study show there is a need for nurses to be aware of the psychological status of Radical prostatectomy patients and its impact upon patients' experience of postoperative pain and recovery (85). A study agreement that bad event effect pain, these findings suggest several intervention points for health care practitioners, including careful prenatal screening of past trauma history, social support, and expectations about the birth; improved communication and pain management during the birth; and opportunities to discuss the birth postpartum (86).

5.2.4 Early Ambulation

Early ambulation may be not valid in governmental hospitals due to number of patients in relation to staff numbers. Therefore the number of the patients who stay in governmental hospitals is higher than that in private hospitals where number of staff is relatively higher. Physiotherapist who encourages patients to do postoperative exercises is not available in most governmental hospitals. In this study we show that early ambulation 8 hours and more is significant associated with severe – very severe. However early ambulation post operative 6-8 hours is very important to prevent complications postoperatively such as thromembolism (83). A study shows that early ambulated group is less complicated than nonambulated group. The optimum time to ambulate these patients is in the first 24 to 36 hours (87).

5.2.5 Post Cesarean Section Analgesia

Women undergoing cesarean delivery should have access to high-quality pain relief that is safe and effective (88). In our study showed that the route used to relief pain IM represents 98.4%. The main analgesics used in three governmental hospitals are diclofene sodium (Rufenal) represent93% and meperidine hydrochloride (Pethedine) represent 52%. Using diclofen consider good due to less side effect of non-steroid anti-inflammation drugs and help mother to take care for her baby. A study post CS showed the effectiveness of diclofenac intramuscular, the drug can decrease the pain and amount of morphine used in post operative CS(41). The pain in the diclofenac group was less than the placebo group. The postoperative pain which was assessed by pain VAS in both groups was significantly different. This is similar to orthopedic operation, hip

replacement, which had more pain than Caesarean section (41). But in some studies, Diclofenac intravenously can reduce pain better than intramuscular rout (89). Several NSAIDs have been used successfully after cesarean section for pain relief; these include naproxen, diclofenac, ketoprofen, indomethacin, and ketorolac (90). NSAIDs potentiate the effects of both neuraxial morphine and PCA after cesarean section, leading to decreased opioid consumption (90, 91). PCA has been used in the management of postoperative pain for more than a decade. This modality is preferred to IM opioid injections because it overcomes the problems of inappropriate drug dosage and delays in drug administration and provides a more ideal way of assessing the need for postoperative analgesia because patients titrate themselves to an acceptable level of comfort and control side effects without overmedicating (92). PCA provides better analgesia and patient satisfaction when compared with IM injections given on patient demand (93). But in our hospitals it is not available because it cost and need more training how to use it (93).Studies show that 50% - 70% of patients in general have inadequate pain relief (2). A study in comparing the median dose of meperidine, those who received it via PCA a significantly higher dose than those who received it IM. But patients who received meperidne via PCA had significantly fewer times when they rated their pain as moderate or worse when compared with patients who received IM (42). The authors conclude that pain management with morphine sulfate is superior to management with meperidine in women who have undergone CS (42).

5.2.6 Nicotine Abstinence & Pain Postoperative

Smoking cigarettes and other forms of nicotine administration appear to blunt the perception of pain. Abrupt discontinuation of nicotine in nicotine-dependent patients appears to increase the perception of pain (88). In our study 7.8% are smoking 5 cigarettes and more. Result show no significant between smoking and pain. In other study it was shown smokers deprived of nicotine required a greater amount of opiates in the first 48 hours after CABG than nonsmokers. Healthcare providers need to be aware of the potential for increased narcotic requirements among nicotine-deprived smokers (88). A study of female smokers has increased postoperative narcotic requirements result show that there was no difference between current and former smokers. Patients who have smoked have more pain and required more narcotic for postoperative pain control. This effect was equally strong for former as for current smokers (64). In USA a study post CS shown that nicotine abstinence results in clinically and statistically different morphine requests/utilization compared to non-smokers. The number of bolus requests as well as the amount of drug (relative to body weight) is a useful measure to assess patient's self-perception of pain (65).

5.2.7 Socioeconomic Status and Pain Postoperative

People interpret and react to health symptoms, including pain, based on their life experiences and their cultural norms (89).

In our study there is a significant relationship between socioeconomic status and pain. This result is incurigment a study which examined the relation between pain intensity post cesarean delivery and socioeconomic status. They reported that the group with high socioeconomic status had low rate of pain whereas the other with low socioeconomic had high rate of pain (90). In Taiwan study reported that gender, age and postoperative pain upon movement are major factors influencing morphine requirement during the first three postoperative days (91). Other study found while individual factors are probably of greatest importance in the treatment of postoperative pain, cultural factors do contribute to the variability. Whether this reflects ethnic differences in analgesic requirements or reflects cultural bias in treatment remains to be determined. In a milieu of under treatment of pain, some cultural styles may be more susceptible to under treatment than others (92).

Chapter six

Conclusion and Recommendation

6.1 Conclusion

Patients underwent CS under general anesthesia, source of information from relative, previous experience of pain, the length of time of operation 30-60mints, type of stitches- one stitch, nurse approach of pain, early ambulation post CS 6-14hrs, way of pain reflection by gesture and complain bad events post CS that is baby admitted to neonate, events related directly to the patient as bleeding are factors affecting the intensity of pain postoperatively.

6.2 Recommendation

The results of the current study, suggest some useful recommendations for the strategic pain management, and factors affecting pain post CS.

6.2.1 Training Recommendation

- Offer courses to health teams about pain management and how to deal with patients post operative.

6.2.2 Policies Recommendation

- Flow sheet paper for could be supplement in the patient's files to evaluate pain progress.
- Development of Acute Pain Services (APS) in each hospital as Pain is to be labeled the "fifth vital sign" in hospitals.
- Universities and schools who educate health team (doctors, midwives, and nurses) offer topics that directly deal with this subject.

6.2.3 Management Recommendation

- Encourage preoperative and post operative education for patients who do CS.
- Encourage companion for psychological support, and health team support.
- Encourage health team to give more attention especially to gestures.
- Encourage a decrease in the use of pharmacological agents and used non- pharmacological agents instead.

6.2.4 Recommendation for future researches

Although many more issues remain to be investigated.

- Examining differences between spinal and general anesthesia in governmental hospitals is essential
- Replication studies should identify pain management committee in hospitals and analyze the impact of these on hospital performance in patient's satisfaction.

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Appendices

Appendix A

Table (A.1)

The frequency length of time of OP.

		length of time of CS			Total
		30 minutes	30-60 minutes	> 60 minutes	
pain severity	6-8 sever	32	105	17	154
	very sever	18	45	14	77
Total		50	150	31	231

30-60 mints associated with sever to very sever.

Table (A.2)

Type of stitches- one stitch.

		Type of stitches		Total
		one stitches	> one stitches	
pain severity	6-8severe	138	16	154
	very severe	62	15	77
	Total	200	31	231

One stitch is significant associated with sever to very severe pain.

Table (A.3)

he frequency source of information

		Source of Information						Total
		Relative	Friends	Neighbors	Medical staff	Past experience	No body	
pain severity	6-8 sever	79	14	6	36	17	2	154
	very sever	34	10	9	6	16	2	77
Total		113	24	15	42	33	4	231

Source of information from is associated with high intensity of pain.

Table (A.4)

The frequency of previous experience of pain.

pain severity & pain history post CS Cross tabulation Count				
		pain history post CS		**Total**
		yes	**No**	
pain severity	**6-8 sever**	**154**	**0**	**154**
	very sever	**77**	**0**	**77**
Total		**231**	**0**	**231**

Pain severity associated with no past experience of pain.

Table (A.5)

The frequency nurse approach with pain

		nurse approach with pain					**Total**
		excellent	**very good**	**good**	**not bad**	**others**	
pain severity	**6-8 severe**	**33**	**38**	**55**	**27**	**1**	**154**
	very severe	**15**	**14**	**20**	**25**	**3**	**77**
Total		**48**	**52**	**75**	**52**	**4**	**231**

Good nursing approach associated with severe to very severe pain.

Table (A.6)

The frequency of the ambulation post caesarean.

		ambulation post CS			**Total**
		from 6-8 hrs	**from 8-14 hrs**	**14-24 hrs**	
pain severity	**6-8 severe**	**67**	**72**	**15**	**154**
	very severe	**28**	**37**	**12**	**77**
Total		**95**	**109**	**27**	**231**

Time 6-14hrs significant associated with severe to very severe pain.

Table (A.7)

The frequency of the way of pain reflection.

pain severity * way of pain reflection Cross tabulation Count					
		way of pain reflection			**Total**
		complain	**gesture**	**others**	
pain severity	**6-8 severe**	**80**	**66**	**8**	**154**
	very severe	**42**	**26**	**9**	**77**
Total		**122**	**92**	**17**	**231**

Complain way of reflection associated with severe to very severe pain.

Table (A.8)

The frequency of the bad events related to you directly.

		Bad events related to you directly					**Total**
		Bleeding	**Death of the baby**	**Family member had bad event**	**Wound infection**	**Baby admitted to neonate**	
pain severity	**6-8 severe**	**40**	**17**	**2**	**5**	**90**	**154**
	Very severe	**17**	**5**	**3**	**13**	**39**	**77**
	Total	**57**	**22**	**5**	**18**	**129**	**231**

Admitted baby to neonate associated with severe to very severe pain.

Table (A.9)

The frequency of the pain severity and did you have bad events

		Is there a relationship between baby bad events & pain intensity		**Total**
		yes	**no**	
pain severity	**6-8 severe**	**48**	**106**	**154**
	very severe	**41**	**36**	**77**
Total		**89**	**142**	**231**

Appendix B

جامعه النجاح الوطنية

العوامل المؤثرة في حدة الألم بعد العملية القيصرية في المستشفيات الحكومية

تحيه طيبه وبعد

تشكل هذه الاستمارة جزأ من دراسة في برنامج ماجستير الصحة العامة في جامعة النجاح الوطنية – نابلس وتهدف الدراسة لإمكانية تحديد العوامل المؤثرة على حدة الألم ومعالجته بعد العملية القيصرية في المستشفيات الحكومية في مدينة نابلس جنين رام الله لما للألم أهميه كونه يعتبر العامل الخامس من العلامات الحيوية

هذه الاستمارة تقصي أراء شريحة أساسية في هذه المجال للنساء اللواتي خضعن للعملية القيصرية. إن كافه المعلومات والأراء الشخصية المعطاة من قبلكم ستبقى في حيز الثقة الكاملة وسوف تعامل كل استمارة بسريه تامة ونتائج الاستطلاع ستكون لأغراض البحث العلمي فقط دون التعريض لأسم المريضة أو المؤسسة وتؤكد على الاحترام المطلق لخصوصيات المريضة ونتعهد بالحفاظ على كافة المعلومات المعطاة في هذه الاستمارة

إن مشاركتك في هذه الدراسة تعطيك حرية المشاركة وأنك تستطيعين في أي وقت التوقف عن المشاركة في هذه الدراسة دون أن يكون لتصرفك أي رد فعل سلبي على طريقه علاجك من قبل المسؤلين عن ذلك

ملاحظة الرجاء وضع دائرة حول المربع للجواب الذي يتم اختياره.

وشكرا على حسن تعاونكم ومساعدتكم

الباحثة : رندة عبدو

استبيان للمرض

رقم الملف

رقم التلفون أو موبيل إن وجد :

س:1 اسم المستشفى:

1.مستشفى رام الله 2.مستشفى نابلس 3.مستشفى جنين

س2 :العمر :

1.من (15-20) عاما

2.من (21-35) عاما

3.من (36-45) عاما

4.من (45) عام فأكثر

س3: المؤهلات:

1 .مرحله أساسية

2 .توجيهي فاقل

3 .مرحلة جامعيه

4 .ماجستير فأكثر

س4: مكان السكن:

1 .مدينه

2 .قرية

3 .مخيم

س5: وزنك:

1 .من (50-60) كغم

2 .من (61-80) كغم

3 .من 81فأكثر كغم

س:6 الطول:

1 . من (120-140) سم

2 .من (141-170) سم

3 .من (171-190) سم

س7: معدل الدخل الشهري:

1 .من (1000) شاقل فاقل

2 .من (1001-2000) شاقل

3 .من (2001) فأكثر

س8: المهنة:

1 .ربه بيت

2 .موظفه قطاع حكومي

3 .موظفة قطاع خاص

س9: عدد مرات الحمل:

1 . مرة 2 . من (2-3) مرات

3 . من (4-5) مرات 4 . أكثر من (5) مرات

س10: الرعاية الصحية خلال فتره الحمل تمت عند:

1 . عيادة أخصائي /ة

2 . مركز صحي

3 . عيادة طب عام

4 . عيادة رعاية حوامل

س11: اذا كانت مدخنة (عدد السجائر باليوم):

1 .اقل من (5) سجائر

2 . من (5-10) سجائر

3 . من (11-20) سجائر فأكثر

4 . بكيت فأكثر

س12: اذا كنت تشربين الشاي كم كوب من الشاي تشربين باليوم:

1 . كوب واحد

2 . كوبين –أربع أكواب

3 .خمس فناجين فأكثر

س13: اذا كنت تشربين القهوة كم فنجان من القهوة تشربين باليوم:

1 . فنجان واحد

2 . فنجانين –أربع فناجين

3 .خمس فناجين فأكثر

س14: كيف تم الدخول للمستشفى:

1 . استقبال

2 . طوارئ

3 .انتقال من مستشفى اخر

4. محول من قبل أخصائي

س15: عدد الولادات القيصرية:

1 . مرة

2 . من (2-3) مرات

3 .من (4-5) مرات

4 .من 6 مرات فأكثر

س16: السبب في إجراء القيصرية:

1 .معد لها مسبقا

2.طارئ

3 .غير ذلك

س17: الوقت المستغرق لأجراء للعملية:

1 . نصف ساعة

2 . ساعة

3 . أكثر من ذلك

س18: وزن المولود:

1 .(2.5-1.5) كغم

2 . (3.5-2.5) كغم

3 . (4-3.5) كغم

4. (4) كغم فأكثر

س19: نوع الجرح :

1. فقط قطبه واحدة

2. عدة قطب

س20: هل أصابك الم بعد العملية القيصرية:

1 نعم 2 لا

س21: وصف الألم وشدته:

1. من (1-3) خفيف

2 . من (4-5) متوسط

3.من (6-8) شديد

4.من (8-10) شديد جدا

س22: الطريقة التي يتم التعبير فيها عن الألم:

1. الشكوى

2. الإيحاء الجسدي

3. غير ذلك

س 23: المسكن المستخدم للألم :

1.بالوريد

2.بالعضل

3.بالشرج

4.بالفم

5.غير ذلك

س24: الفترة الزمنية بين استخدام المسكن وزوال الألم:

1. من (30-60) دقيقة

2. من (2-4) ساعات

3. من (5-8) ساعات

4. غير ذلك حدد

س 25: هل لديك فكرة سابقة عن شدة الألم ؟

1 نعم 2 لا

س 26: من أين حصلت على المعلومة:

1. الاهل

2. الأصدقاء

3. الجيران

4. الطاقم الطبي

5. لا احد

س27:هل هناك علاقة بين جنس المولود وشدة الألم:

1 نعم 2 لا

س28: تزيد شدة الألم مع ولادة:

1. ذكر 2.أنثى 3. لا يوجد علاقة

س29: الحركة بعد العملية:

1 من (6-8) ساعات

2 من (8-14) ساعة

3 غير ذلك حدد

س30: هل كان للدعم العائلي دور في تخفيف شدة الألم ؟

1. نعم 2. لا

س31: لمن كان الدور الايجابي لهذا الدعم:

1. الزوج
2. الأبناء
3. الأهل
4. الأصدقاء
5. الجيران
6. لا احد

س32 هل كان للطاقم الطبي دور في تخفيف شدة الألم (الطبيب، الممرضة ،المبنج)؟

1. نعم 2. لا

س33:طريقة تعامل الممرضات مع آلامك وتعبك:

1. ممتازة
2. جيد جدا
3. جيد
4. لا بأس
5. غير ذلك

س34:هل حدث معك أي مضاعفات بعد العملية كان له اثر على شدة الألم ؟

1. نعم 1. لا

س35: المضاعفات التي حدثت كانت ذات صلة مباشرة فيك:

1. نزيف
2. وفاة الطفل المولود
3. احد إفراد الأسرة أصيب بمكروه
4. التهاب جرح العملية
5. غير ذلك

س36: ما هي العوامل المؤثرة في حدة الألم ومعالجته بعد الألم:

1. عوامل طبية
2. عوامل نفسية
3. عوامل اجتماعية
4. عوامل سياسية

س37: من خلال الأسئلة السابقة هل تعتقدين بأننا استطعنا تحديد العوامل التي تؤثر على الألم ما بعد العملية القيصرية:

1. نعم 2. لا

إذا كانت الإجابة (لا) رجاءا اخبرينا ما هو الشيء الذي لم يذكر

شاكرين لكم حسن تعاونكم

Appendix C

جامعة النجاح الوطنية
كلية الدراسات العليا

العوامل المؤثرة في حدة الألم بعد العملية القيصرية في المستشفيات الحكومية في الضفة الغربية في فلسطين

إعداد
رندة اسعد سعيد عبده

إشراف
الدكتور أيمن حسين
الدكتور هشام النعنع

قدمت هذه الأطروحة استكمالاً لمتطلبات درجة الماجستير في الصحة العامة بكلية الدراسات العليا في جامعة النجاح الوطنية في نابلس- فلسطين.

2008

العوامل المؤثرة في حدة الألم بعد العملية القيصرية في المستشفيات الحكومية في الضفة الغربية في فلسطين

إعداد

رندة اسعد سعيد عبده

إشراف

الدكتور أيمن حسين

الدكتور هشام النعنع

الملخص

هناك زيادة تدريجية في عدد الولادات القيصرية على مدى الثلاثين عاماً الماضية، ففي تشرين الثاني/ نوفمبر عام 2005، وجد مركز الأمراض والوقاية ارتفاعاً عالياً جداً في عدد الولادات القيصرية التي جرت في العالم ووصلت إلى نسبة 29.1% إي أكثر من ربع عدد الولادات، مما جعل مركز الأمراض والوقاية يحدد هدفه الوطني بتقليل عدد القيصريات "منخفضة المخاطر" بحلول 2010.

في الضفة الغربية لا توجد معلومات واضحة (إحصائيات محددة) حول نسبة القيصريات، في مستشفى رفيديا بمدينة نابلس بلغت نسبة القيصريات نحو 11% في السبعينيات، وقفزت إلى 14–13% في الثمانينات والتسعينات من القرن الماضي. وسجل المستشفى في الأربع سنوات الأخيرة نسبه 14–15 ٪. وظلت هذه النسبة على حالها خلال انتفاضة الأقصى في عام 2000–2004 حتى اجتياح مدينة نابلس؛ وقفزت لتبلغ 21٪، كما طالبت النساء التسليم لولادة قيصرية وذلك لتفادي التأخير في نقاط التفتيش. تهدف هذه الدراسة إلى تحديد العوامل المؤثرة في شدة الألم للسيدات اللواتي خضعن للعملية القيصرية.

وقد أجريت الدراسة في الفترة من شباط / فبراير – آذار / مارس 2007. وبدأ تنفيذ المشروع في ثلاثة مستشفيات حكوميه في مدن نابلس وجنين ورام الله. وتم تحرير الإستبانة من خلال مقابلات وجها لوجه، بالإضافة إلى المعلومات التي جمعت من ملفات المرضى. وضعت عدة فرضيات واختبرت بالبرنامج الإحصائي للعلوم الاجتماعية وباستخدام وسائل أخرى. عند نقطة القوة 0.05 كانت هناك اختلافات إحصائية مهمة بين شدة الألم ، وهذه المتغيرات: مصادر المعلومات، وتاريخ الولادة القيصرية السابقة وطول الفترة الزمنية للعملية ونوع الغرزة ،

وتعامل الممرضات مع المريضات اللواتي يعانين من الألم والتعب، والألم، وطريقة الشكوى من الألم، والحركة بعد الولادة القيصرية، والأحداث السيئة المتصلة مباشرة بالمرضى.

ولكن، وبنفس درجة الوضوح، لم تكن هناك فروق كبيرة بين شدة الألم، وهذه المتغيرات، هي دعم الأسرة ونوع الطفل المولود ووزنه، والفريق الطبي، ومكان السكن، والمهنة والدخل و المؤهل العلمي، والمتابعة خلال فترة الحمل، وعدد مرات الحمل، والتدخين وشرب الشاي و شرب القهوة، وطريقة استخدام الأدوية أو الادوية المعطاة. لقد ثبت بأن إدارة الألم هي احد معايير الجودة في تقديم الرعاية الصحية وهذا يتطلب المزيد من الاهتمام لمعالجة الآلام بعد العملية ونوعية الرعاية في المستشفيات، يجب أن يشمل تقييم معالجة الألم و معرفة العوامل التي تزيد من حدة الألم لمعالجتها.

في هذا الدراسة إن 75.7% من المريضات اللواتي شكوا بأن حدة الألم كانت شديدة جداً (6–10) بحسب المقياس بعد العملية القيصرية. أن الحركة المبكرة للمريضة تساهم في الإسراع في عملية الشفاء وهذا بدورة له تأثير على خصم التكلفة وايضاً يعطي الأم فرصة بأن تعتني بطفلها في وقت مبكر والعمل على ارضاعه لما للرضاعة الطبيعية من فوائد جامة تعود على الأم والطفل معاً.