

Outcomes and Satisfaction with Single-Shot of Spinal Analgesia for labor pain relive among women in Sana'a City

(A Retrospective descriptive study)

Research submitted in partial fulfillment of the requirements of the diploma degree in anesthesia and Intensive care unit.

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قال تعالى:

﴿أَعْرِفِ اللَّهَ مِنْ ذِيْلٍ أَوْ إِنْ أَمَاءُ نَكْمٍ مِنْ ذِيْلٍ أَوْ مِنْ عِلٍّ أَوْ أَوَاتٍ تَجْرِدُ أَوَّلَ اللَّهِ أَمْبٍ

نوملتع بيخ ﴿

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Research team

DEDICATION

To our Country Yemen

To all members of our families and dear friends,

To all those who supported us and we may have forgotten to mention,

To all the women in country who feel the pain of labor

We dedicate this research to them.

Research team:

Abstract

Background: Pain labor analgesia technique is considered as one of the most methods to pain relief, where a very specific drug concentration is used in the back to reduce the pain.

Aim: The objective of this study was to evaluate the satisfaction and outcomes of painless labor with single-shot of spinal analgesia among Yemeni women in Sana'a city, Yemen.

Methodology: A descriptive retrospective study was conducted among the women over the two years period between (26 Feb 2023 and 28 Des 2024) in some private hospitals in Sana'a, city. The simple was used non-random purposive sampling technique that included a total of 104 women by questionnaire & electronic questionnaire. The satisfaction scoring options that used was (Unsatisfied), (High Unsatisfied), (Neutral), (Satisfied), (High Satisfied). (SPSS V 28.0) was used for statistical analysis of data. All statistical testing was two-sided with a significance $P \leq 0.05$.

Results: A study was conducted on women's satisfaction with painless labor using single-shot spinal analgesia in Sana'a, Yemen, where 122 questionnaires were distributed and 104 were completed, yielding a response rate of 86%. The study revealed a high level of satisfaction among women regarding painless labor. It also found a significant relationship between satisfaction and certain variables, such as the hospital's name and the number of previous deliveries.

The majority of participants (89.5%) were urban residents, with an average age of 26 years (standard deviation = 0.91). The age range was 20 to 40 years. In terms of education, 64.4% of the women had completed secondary education, while 23% held university degrees. The study found high satisfaction (over 87.40%) among women with painless labor using single-shot spinal analgesia, particularly regarding the information provided by the anesthesiologist, the effectiveness of pain relief during labor and delivery, and the support received from midwives and doctors. Women were especially satisfied with the effectiveness of the spinal injection in relieving pain during the pushing stage of labor.

Conclusions and recommendations: We concluded that single-shot of spinal analgesia with combination Heavy Marcaine 3-5mg (0.5-1ml), 25mcg fentanyl, 20mcg Adrenaline and 0.5ml normal saline provide effective labor pain control for Yemeni women. And maternal satisfaction with this technique was very high. Also fast, safe and easy technique can perform by anesthesiologist or anesthesia technician. And should be recommended for routine obstetric pain control in Yemen, we also recommend that the Ministry of Health disseminate awareness and health education about this technology providing a sterile area in case occur any complications and require a cesarean section.

Keywords: Satisfaction, Outcomes, Painless Labor, Single-Shot of Spinal Analgesia, Yemeni Women.

CONTENTS

NO.	CONTENTS	Page
1	قبالا القرآنية	I
2	Dedication.	II
3	Acknowledgment.	III
4	English Abstract.	IV
5	Contents.	V
6	List of tables.	VI
7	List of Abbreviations.	VII
8	Chapter One: Introduction.	1
9	Chapter two: Literature Review	8
10	Chapter three: Research Methodology	21
11	Chapter four: Results	26
12	Chapter five: Discussion	42
13	Chapter Six: Conclusions and Recommendation	45
14	Appendices	48
15	References	56

LIST OF TABLES

NO		
1	Counseling women before insertion of labor epidural	3
2	Satisfaction scale method table	23
3	Distribution of study sample according to hospital.	27
4	Distribution of study sample according to demographic data	28
5	satisfaction level with painless labor by Single-shot among participating women in the study	31
6	show information about the effectiveness of Single-shot in pain relief before, during, and after childbirth	34
7	Results of painless labor by Single-shot technique According to the Numeric Rate scale	35
8	Results of painless labor by Single-shot pain According to Side Effects and Possible Complications	36
9	Results of painless labor by Single-shot technique According to the APGAR Score for Newborns	36
10	Participants' opinions on the experience of giving birth naturally without epidural anesthesia	37
11	The relationship between satisfaction and demographic variables	37
12	Single-shot of spinal analgesia before, during, and after childbirth	38
13	the relationship between satisfaction with painless labor among women and information about pain relief techniques according to the degree of pain	39
14	the relationship between satisfaction and outcomes use Single-shot shot of spinal analgesia to side effects and Possible Complications	40
15	The relationship between satisfaction and outcomes uses Single shot of spinal analgesia to baby's vital signs	41

LIST OF ABBREVIATIONS:

EA	Epidural Anesthesia
SDIA	Single dose intrathecal analgesia
CSF	Cerebrospinal Fluid
NSAID	Nonsteroidal Anti-inflammatory Drugs
VAS	Visual Analog Scale

CHAPTER ONE

Introduction

1.1. Background

Labor is one of the most painful experiences for a Woman during her lifetime, and the experience is different for each woman. The lack of antenatal psychological preparation combined with fear and anxiety greatly enhance the patient's sensitivity to pain. Thus, pain relief not only provides with fear and anxiety greatly enhance the patient's sensitivity to pain. Thus, pain relief not only provides fetal nutrition and oxygen supply (**Chauhan et al.,2020**).

Delivery pain is the most unbearable pain for women, associated with psychological effects combination have been introduced to relieve delivery pain, among which regional analgesia is known as the gold standard technique. Spinal anesthesia relieves pain, with its analgesia beginning immediately (**Alahmari et al.,2020**).

Labor pain is one of the most common and severe forms of suffering that women experience, and it is a well-known cause of dissatisfaction among women in labor. A lot of pregnant women concerned about the severity of childbirth pain, search and ask for the availability of pain-relieving methods. Some pregnant women prefer to feel the natural process while others may choose to get epidural anesthesia (EA) (**Alahmari et al.,2020**). Approximately 20% of laboring women in the United Kingdom (UK) receive epidural analgesia, 60-80% in the USA, representing upwards of 140,000 epidurals (**Summers,&Flett,2019**). In a developing countries eighty-five percent of surveyed women indicated that they would request labor analgesia if available, but only 40% received labor analgesia (**Anabah et al.2015**).

The epidural space is a potential space containing fat, blood vessels, and spinal nerve roots and lies between the ligamentum flavum and dura mater (Figure 1) The spinal cord ends around L1\L2 and becomes a loose bundle of intradural nerves, the caudal equina. labor epidurals are sited below the level of the spinal cord to minimize risk of nerve injury. Before insertion of the epidural, parturient should be counseled on the risk and benefits (table1) (**Halliday et al.,2022**).

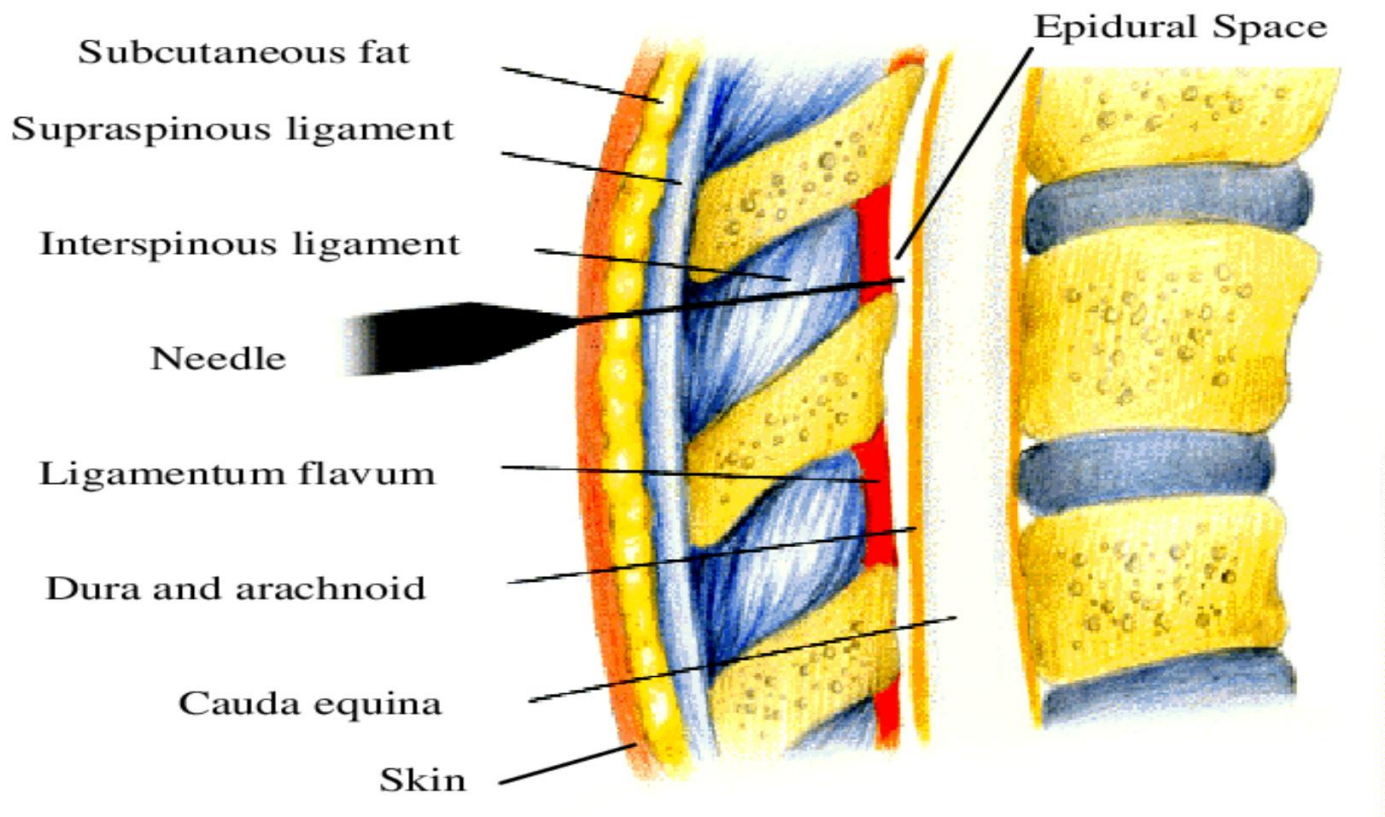


FIGURE 1: (a) Conventional epidural catheter insertion and (b) combined spinal epidural. (a) The Tuohy needle within the epidural space before threading of epidural catheter through the hollow Tuohy needle to lie within the epidural space demonstrates (b) the Tuohy needle within the epidural space and the spinal needle puncturing the dura mater and the delivery of intrathecal medication into the subarachnoid space *Source: (Halliday et al.,2022).*

Risk	Frequency
Additional pain relief required on top of epidural	In 81
Epidural not functioning well enough for cesarean delivery—require a spinal or general anesthetic	In 201
Significant drop in blood pressure	In 501
Severe headache	In 100,1
Temporary nerve damage (e.g. patch of numbness on leg or weakness in leg)	In 10001
Damage permanent nerve	In 13,000,1
Epidural abscess (infection)	In 50,000,1
Meningitis	In 100,000,1
Epidural hematoma (blood clot)	In 170,000,1
Severe injury (including paralysis)	In 250,000,1

TABLE. Counseling women before insertion of labor epidural

Before insertion of the epidural, women should be counseled on risks and benefits of the procedure. information leaflets can be downloaded from www.labourpains.com The public information leaflets website of the Obstetric Anesthesia' Association (OAA). These leaflets are currently available in up to 40 languages. In addition, the anesthesia performing the procedure should discuss the risks with the parturient and allow the opportunity for questions **source: (Halliday et al.,2022).**

Labor pain is one of the most common and severe forms of suffering that women experience, and it is a well-known cause of dissatisfaction among women in labor. a lot of pregnant women, concerned about the severity of childbirth pain. some pregnant women prefer to feel the natural process while others may choose to get EA **(Alahmari et al.,2020).**

EA make childbirth less stressful and more acceptable for mothers. epidural analgesia in However, it is associated with an apparent increase in the risk for obstetric **(Anim- somuah Alahmari et al.,2020).** EA is a central nerves block technique achieved by injection of a local anesthetic close to the nerve that transmit pain, and is widely used as a form of pain relief in labor. However, there are concerns about unintended adverse effects on the mother and infant **(Chauhan et al.,2020).**

Some studies have reported intrathecal labor analgesia is more economical as compared epidural analgesia; hence, single dose intrathecal analgesia may prove to a useful method in limited resource areas, especially in rural and peripheral areas where epidural catheterization may not be possible. If later, labor patient requires subsequent spinal or epidural anesthesia for caesarian section there is no contraindication. therefore, o be single –dose intrathecal analgesia may prove to be a useful method in limited resource areas **(Anabah et al.,2015)** Epidural analgesia results in greater maternal satisfaction and more effective pain relief than do other forms of labor analgesia when evaluated shortly after delivery.

Compared with higher –dose epidural blockade, low-dose techniques that increase mobility have also been shown to increase maternal satisfaction. retaining control is commonly quoted as an important criterion in the satisfaction of childbirth **(Cooper et al.,2010)** Also addition of intrathecal opioids permitted reduction of the bupivacaine concentration from 0.5% to as low as 0.065% while maintaining effective analgesia and potential adverse effect on progress of labor and lower block **(Anabah et al.,2015 & chauhan et al.,2020).**

The present study aims to evaluate the satisfaction and outcomes of painless labor among Yemeni women in Sana'a, Yemen.

1.2. Problem statement & justification:

Labor is a critical and important period in a woman's life. However, most women suffer from high-intensity pain during labor (**Rachmawati,2013**). The pain experienced during delivery is mainly a physiological symptom, but psychological or social factors are also involved in its perception (**Whitburn et al.,2107& Steel et al.,2015**). Pain relief during delivery is desirable to reduce the mother's suffering and accelerate the progress of labor. The reduction of pain intensity requires appropriate techniques, as most women wish to experience some pain level during delivery (**Rachmawati,2013**).

The results of studies demonstrate that more than 23% of primiparas characterize this pain as unbearable, 65% as very strong or strong, and only 9% as bearable. On the other hand, only 17% of multiparas describe this pain as unbearable, 46% as very strong or strong, and 25% as acceptable (**Steel et al.,2015& Dabrowska et al.,2018**).

The factors which have an impact on labor pain are physiological, psychological, and social. The psychological factors refer to the approaches and beliefs concerning labor pain. Modern ideas and the impact of the Western 61 approach to pain have gradually changed the perception and desire for pain relief during labor (**Beigi et al.,2019& Pietrzak et al.,2022**). Labor pain relief requires teamwork, including the cooperation of the anesthetist, midwife, and obstetrician. When selecting the adequate analgetic technique for a woman in labor, one should bear in mind that the chosen method should be safe for both the mother and the child (**Pietrzak et al.,2022**). Appropriate analgesia is vital because pain elevates the level of circulating catecholamines, which impairs the perfusion of the uterus (**Rachmawati,2013**). The selection of the analgetic technique depends on the patient 's condition, the progress of labor, and the available resources (**Whitburn et al.,2107**).

Pharmacological methods of labor pain relief include the administration of parenteral opioids, inhalation, and regional methods. Non-pharmacological pain management includes a broad spectrum of techniques, including water immersion (shower, bathtub) or transcutaneous electrostimulation. They aim to alleviate the physical perception of pain and prevent suffering by improving psychological and mental elements of care (**Dabrowska et al.,2018**). Pain management has a low priority in many countries with low and medium incomes (**Lindholm&Hildingsson,2015**).

Therefore, some authors emphasize that women's preferences for pain relief methods during labor are not thoroughly investigated. The literature offers conflicting results about the choices of pain relief methods during labor. In Australia, 77% of women in labor use pharmacological intervention for pain relief, including regional analgesics 33%, whereas in some hospitals in the United States, as many as 80% of laboring women receive epidural analgesia. The partner 's preference and having a previous epidural were the two significant predictors of a woman receiving an epidural (**Alakeely et al.,2018**).

The duration of spinal analgesia can be prolonged by adding the hydrophilic morphine that stays in the cerebrospinal fluid (CSF) longer, increasing the duration of analgesia. Published studies of morphine added to spinal anesthesia for surgery have documented this effect. Studies on morphine added to spinal analgesia for labor-pain are mostly small-number studies and the results are conflicting. The aim of this study was to perform a systematic review of randomized controlled trials assessing the prolongation of analgesia after adding morphine to local anesthetic spinal analgesia during labor (Al-Kazwini et al.,2018).

There are widespread misconceptions, by both parturient and health care providers, also fear of trying this technique as is still unknown in Yemeni society to date, that labor epidural analgesia is harmful to mother and baby (Hu et al.,2016). Maternal satisfaction during the childbirth process is considered an important aspect for improving the childbirth experience and maternal healthcare. However, there is a lack of available research on maternal satisfaction and the outcomes resulting from pain-free childbirth. In the Yemeni context, this lack is notable due to the unique social, cultural, and healthcare factors that affect women's childbirth experience.

To the best of the researchers' knowledge, after researching and reviewing many published articles, *we have found one local Studie that have dealt this topic satisfaction and outcomes of painless labor in Sana'a, Yemen.* Therefore, this research aims to assess maternal satisfaction and the outcomes of pain-free childbirth among Yemeni women in Sana'a, Yemen. The research also aims to study the influencing factors on maternal satisfaction and shed light on the challenges and potential opportunities to improve pain-free childbirth care in Sana'a, Yemen.

1.3. Study Objectives:

1.3.1.General Objective:

The objective of this study was to evaluate the satisfaction and outcomes of painless labor with single-shot of spinal analgesia among Yemeni women in Sana'a city, Yemen.

1.3.2. Specific Objectives:

1. To evaluate the level of satisfaction according to single-shot of spinal analgesia technique for pain relieve among women in Sana'a city.
2. To identify the outcomes of single-shot spinal analgesia technique.
3. To evaluate the effects of single-shot spinal analgesia on the mother and baby during labor if any.
4. To investigate the impact of single-shot spinal analgesia on the duration of labor and delivery among Yemeni women in Sana'a.
5. Dissemination and awareness of women with this technique.

1.4.Hypothesis:

- 1-Why low awareness level in women about natural birth without pain??
- 2-Do we find results regarding pregnant women's awareness of this technique??
- 3-Why most of private hospital in Sana'a dose not have this technique??
- 4-Is this technique safe for the mother and baby??

1.5. The importance of research:

1-Patient experience: It helps understand women's feelings about pain management effectiveness, enhancing their labor experience.

2-Informed decision-making: Satisfaction research guides expectant mothers in choosing pain relief options that suit their preferences.

3-Qality of care: Hospital can use satisfaction assessments to improve maternity services by addressing areas of dissatisfaction.

4-Psychological impacts: Evaluating satisfaction can reveal lasting psychological effects of childbirth and inform postpartum recovery strategies.

5-Healthcare policy: Findings can influence policies to ensure adequate pain management options are available for all women.

6-Cultural considerations: Research highlights cultural differences in views on childbirth, promoting culturally sensitive care.

CHAPTER TWO

Literature review

2-CHAPTER TWO: Literature review

2.1. Definition of painful labor:

Labor is an emotional experience and involves both physiological and psychological mechanism and it is the active process of delivering a fetus. Pain during labor is caused by contractions of the muscles of uterus and by pressure on the cervix. This pain can be felt as strong cramping pain in their sides or things as well **(labor and Maguire,2008)**. Pain is described as an unpleasant sensory and emotional experience associated with actual or potential tissue damage (International Association for the Study of Pain, IASP), Labor can be defined as spontaneous painful repetitive uterine contractions associated with the effacement and dilatation of the cervix and the descent of the fetus. Labor is reported to be one of the most painful experiences in a woman's life. Labor pain, apart from physical component, also has emotional and cognitive elements. Labor has various effects on parturient and the fetus, some of them may be deleterious to one or both.

Unaddressed labor pain can lead to certain morbidities and complication. Severe pain in the first stage of labor can make the parturient to bear down prematurely against undiluted/partially dilated cervix leading to tears and subsequent postpartum hemorrhage which is an important cause of maternal death in our environment. Uterine rupture and neuropsychological consequences can also happen in some patients. If such pain is unattended to, it can also signal an underlying problem such as obstructed labor. **(Khan et al, 2022)**

2.2. Systemic effect on labor pain: Labor pain as well as tearing of the tissues during labor is associated with direct and indirect effect on mother and fetus.

2.2.1. Cardio-vascular system Labor pain is associated with further increases in cardiac output (15% in the first stage and 50% in the second stage) Uterine contractions lead to an autotransfusion of 300_500 ml of blood back into the circulation and the sympathetic response to pain and anxiety further elevate the heart rate and blood pressure. The higher blood volume is associated with a slight increase in cardiac output and the greatest strain on the parturient heart occurred immediately after delivery as resulting of increase in venous return due to the autotransfusion resulting from uterine involution. **(labor and maguire,2008)**

2.2.2. Central nerves system: Labor stress and pain increase the plasma catecholamine levels and the sympathetic nerves system get activated. Stimulation of pain result in the release of beta-endorphins and ACTH from the anterior pituitary and anxiety increase this response. Excessive activity of sympathetic may result in in-coordinate uterine action, prolonged labor and abnormal fetal heart rate pattern. **(labor and Maguire,2008)**.

2.2.3. Respiratory system: In labor, hyperventilation, minute ventilation and oxygen consumption increase and tachypnea caused by pain and anxiety might result in hypocarbia

and marked respiratory alkalosis, adversely affecting fetal oxygenation by reducing uterine blood flow and the oxygen-hemoglobin dissociation curve is shifted to the left which cause a diminished oxygen transfer to the fetus. **(labor and Maguire,2008).**

2.2.4. Metabolic and Hormonal: During labor, occur increase of glucagon, growth hormone, rennin and ADH level and decrease of insulin and testosterone level.

At the time of delivery circulatory free fatty acids and lactate also increase with a peak level. **(labor and Maguire,2008).** Pain also stimulates the increased release of both adrenaline and noradrenaline from the adrenal medulla which may lead to a progressive rise in peripheral resistance and cardiac output. Excessive, sympathetic activity may result in incoordinate uterine action, prolonged labor and abnormal fetal heart-rate patterns. Activation of the autonomic nervous system also delays gastric emptying and reduce, intestinal peristalsis. Maternal catecholamines increase and may cause fetal acidosis due to low placental blood flow. **(labor and maguire,2008).**

2.2.5. Psychological: Labor is a crucial event in a woman's life. The woman's emotional and cognitive experience of birth is recognized as having a significant impact on her postpartum physical and psychological state. And on her first interactions with the infant. A positive childbirth experience can improve maternal well-being and facilitate mother-infant bonding, while negative experience can lead to a condition of psychological distress as well as to severe forms of disease such as postpartum depression, or post-traumatic stress symptoms, future sexual relationship may contribute to postpartum stress disorder. **(labor and Maguire,2008).**

2.2.6. Fetal:

Maternal catecholamines secreted as a result of labor pain may cause fetal acidosis due to low placental blood flow. **(labor and Maguire,2008).**

2.3. Stages of labor:

There are three stages of labor (Fig.2.1)

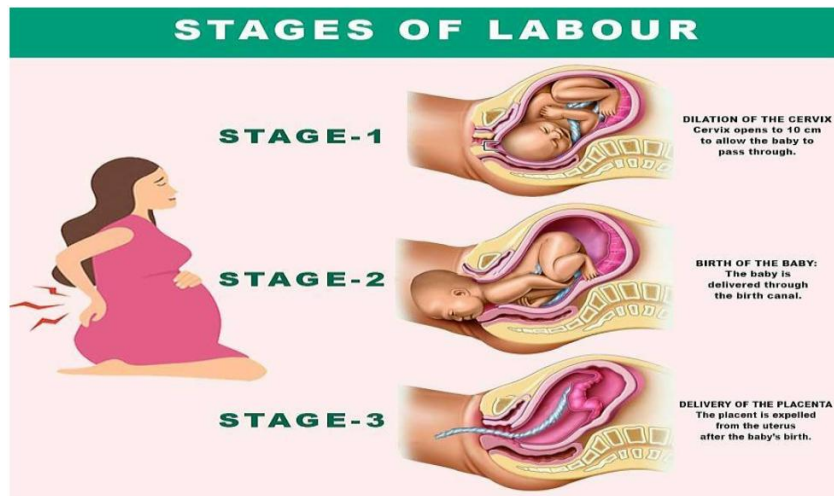


Fig.2.1 Stages of Labor.

2.3.1. The first stage of labor:

Is start with labor and end with cervical dilation.

The first stage of labor is the longest stage, it is usually lasts 8 to 12 hours in un-multiparous patient.

The first stage is divided to two phases:

A- Latent phase: is characterized by progressive cervical effacement and minor dilation (2_4 cm). Fig.2.2

B- Active phase: is characterized by more frequent contractions (3_5min), and progressive cervical dilation up to 10 cm. Fig.2.2 (El Azzazi ,2011)

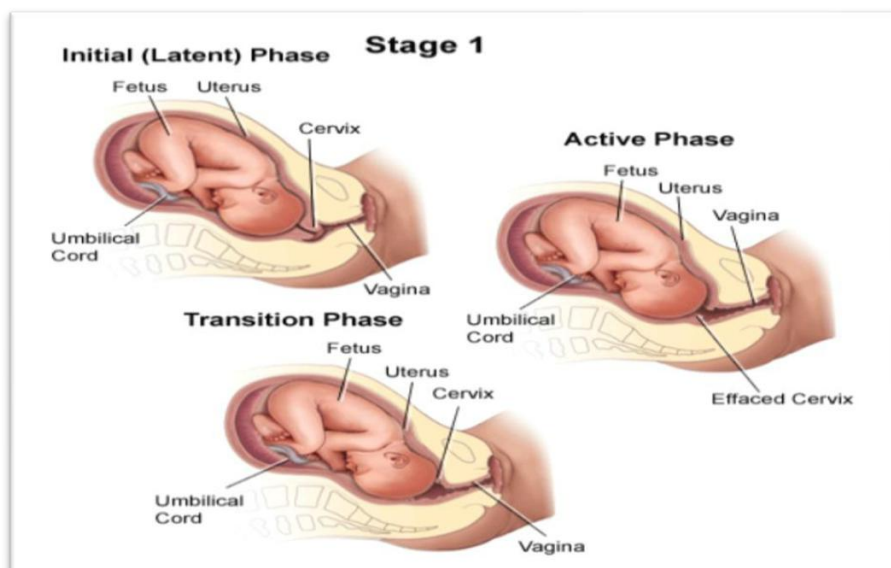
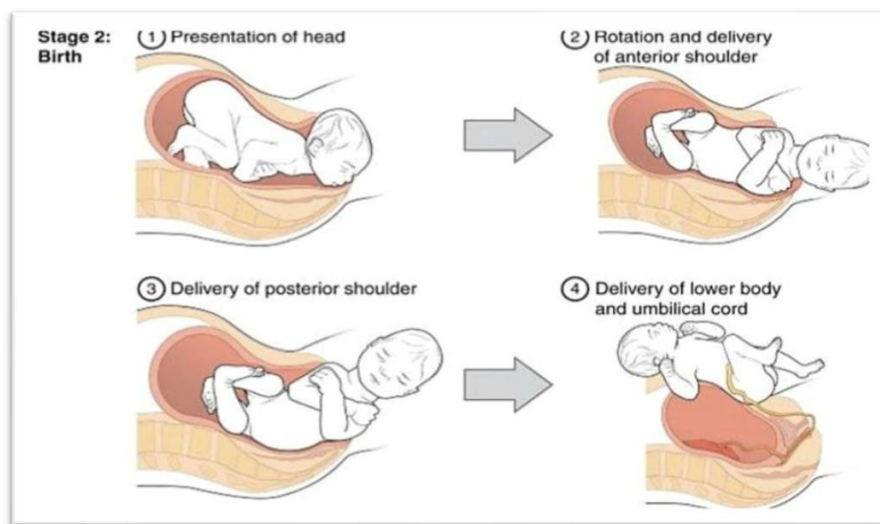


Fig.2.2 First Stage of Labor

2.3.2. Second stage of labor:

The second stage of labor start with full cervical dilation and end with complete delivery of fetus, the contractions during this stage occur 1,5 to 2 min apart and last 1 to 1,5 min and contraction intensity does not change.

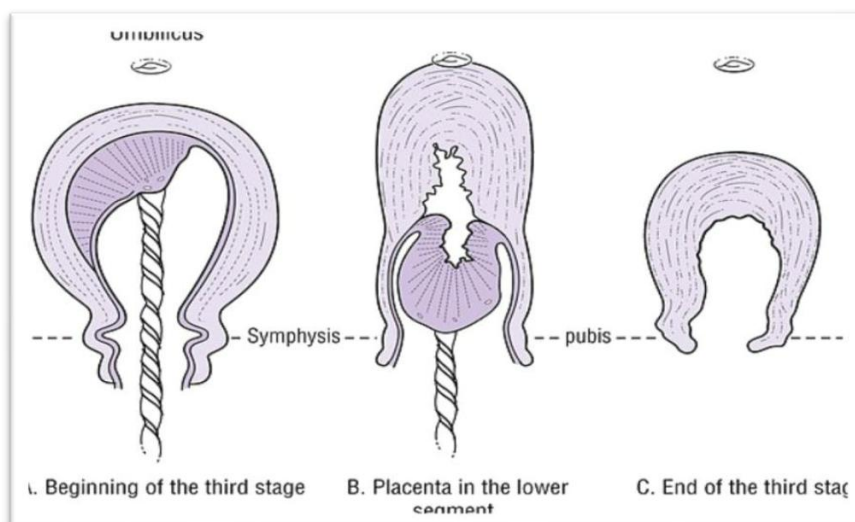
The duration usually lasts 15 to 120 min. Several elements may influence the duration of the second stage of labor, including fetal factors such as fetal size and position, or maternal factors such as pelvis phase, the magnitude of expulsive efforts, comorbidities such as hypertension or diabetes, age and history of pervious deliveries [Fig.2.3 \(El Azzazi ,2011\)](#).



[Fig.2.3](#) Second Stage of Labor

2.3.3. Third stage of labor:

The third stage extends from the birth of the body to the delivery of placenta. The duration of this stage typically 15 to 30 min [Fig.2.4 \(El Azzazi ,2011\)](#)



[Fig.2.4](#) The third Stage of Labor

2.4. Pathways of pain:

In the first stage of labor, pain is caused by distension of the cervix and low uterine segments in combination with isometric contraction of uterus. Pain in the second stage of labor is dominated by tissue in the pelvis and perineum. Labor pain is due to an activation of nociceptors partly resulting from ischemia. The impulses thus generated are conducted into the spinal cord by afferent c fibers from the cervix and lower uterine segments, and by afferent a delta and c fibers from the pelvic, pelvic organs and perineum. Labor pain is referred to the dermatomes T11 and T12 in the early stage of labor. It spreads to the neighboring dermatomes T10 and T1 and eventually involves the dermatomes S2-4 during the second stage of labor and delivery.

As in another type of pain, labor pain stimulates respiration. This reduces the CO₂ concentration in the blood so that, in pain-free periods, respiratory stimulation is lacking and, in consequence, oxygen concentration in maternal and fetal blood is lowered. Pain induced sympathetic activation will increase cardiac output in a way that may be deleterious in parturient with heart disease, eclampsia and anemia. Moreover, slowing of gastric emptying may cause nausea and vomiting, and slowing of intestinal propulsive movements may result in ileus and oliguria. An increase in plasma catecholamines and glucocorticoid influences uterine contractions.

The amount of beta-endorphin release from the pituitary and placenta into the blood is relatively high but obviously not sufficient to depress pain effectively. Adequate nerve block and epidural anesthesia, as well as measures to relieve anxiety, will help markedly to reduce the risks associated with labor pain. **(El Azzazi, 2011)**

2.4.1. Visceral pain:

Visceral pain is transmitted by small unmyelinated C fibers which travel with sympathetic fibers and pass through the uterine, cervical and hypogastric nerve plexuses into the main sympathetic chain. The pain fibers from the sympathetic chains enter the white rami communicantes associated with T10 to L1 spinal nerves and pass via their posterior nerve roots to synapse in the dorsal horn of the spinal cord. Some fibers cross over at the level of the dorsal horn with extensive rostral and caudal extension resulting in poorly localized pain. Chemical mediators involved include bradykinin, leukotrienes, prostaglandins, serotonin, substance P and lactic acid. **(labor and Maguire, 2008)** The pain of early labor is referred to T10-T12 dermatomes such that pain is felt in the lower abdomen, sacrum and back. This pain is dull in character and is not always sensitive to opioid drugs; the response to opioids depends on the route of administration. **(labor and Maguire, 2008)**

2.4.2. Somatic pain: Somatic pain is transmitted by fine, myelinated rapidly transmitting A delta fibers. Transmission occurs via pudendal nerves and perineal branches of the posterior cutaneous nerve of the ilioinguinal and genitofemoral nerves also carry afferent to L1 and L2.

(labor and Maguire,2008) Somatic pain occurs closer to delivery, is sharp in character and easily localized to the vagina, rectum and perineum. It radiates to the adjacent dermatomes T10 and L1 and compared visceral pain, is more resistant to opioid drugs. **(labor and Maguire,2008).**

All resulting nerve impulses (visceral and somatic) pass to dorsal horn cells where they are processed and transmitted to the brain via the spine-thalamic tract. Transmission to the hypothalamic and limbic systems accounts for the emotional and autonomic responses associated with pain. **(labor and Maguire,2008).**

2.5. Benefits of natural labor

2.5.1. Reduced breathing problems:

As the baby comes out of the birth canal, the amniotic fluid is naturally squeezed **(ZADEH et al.,2016)**

2.5.2. Baby receives the beneficial: Babies born through normal delivery will benefit from ingesting bacteria, which is beneficial. That bacteria boosts up the baby's immune system and help the baby from infections and disease in the early days of birth. In addition, these bacteria boost the baby's immune system as the bacteria settle down in the intestinal region and help the baby's gut health. **(YPUSEFZADEH et al.,2016)**

2.5.3. Early breastfeeding:

Giving the mother's milk to the baby as soon as possible after delivery is very beneficial to both the baby and mother. The mother's milk contains thick and yellowish fluid colostrum, rich in protein and another beneficial compounds like immunoglobulin-A and low in sugars. **(YOUSEFZADEH et al.,2016)**

Colostrum, obtained from the mother's milk, helps the baby develop an immature digestive tract. It helps to build a baby's immune system and also provides essential nutrients. **(YOUSEFZADEH et al.,2016)**

2.5.4. No risk for the next child:

There will be more chances of normal delivery for the next pregnancy, which is better as it reduces complications like stillbirth and miscarriage. **(YOUSEFZADEH et al.,2016)**

2.5.5. Reduces the risk of infertility problems:

According to survey, there are very minimal chances of fertility problems after normal delivery compared to c-sections **(YOUSEFZADEH et al.,2016).**

2.5.6. Less surgical complications:

As it is a normal delivery, there will not be any surgical procedures as well as postsurgical complications like excessive blood loss, secondary infections, obesity, and a longer recovery time **(YOUSEFZADEH et al.,2016).**

2.5.7. Cost-effective procedure:

Since the technical aspects are more related to caesarean delivery and that the hospital stay is long, c-suction is more expensive than vaginal delivery (**YOUSEFZADEH et al.,2016**).

2.5.8. Quicker recovery: One of the significant benefits of the natural birth process is the quicker recovery time and shorter hospital stays for new mothers. After a vaginal birth, post-pregnancy care is also for a shorter duration (**YOUSEFZADEH et al.,2016**).

2.5.9. Fast labor:

Fast labor also results in easy delivery since the mother is involved in the labor process. The uterus muscles and the birth canal work together to help the baby move down and out. The C-suction is a surgical procedure that consumes much time and pressure (**YOUSEFZADEH et al.,2016**).

2.5.10. Develops feeling of connection:

Without medication, women are often alert and feel connected with their babies in new and different ways during labor. Many women say they feel empowered by their ability to have a natural birth.

2.6. Methods for labor pain management:

2.6.1. Painless labor:

Painless labor analgesia is a technique where a very specific drug concentration is used in the back [to reduce the pain]. Although it reduces the pain, it maintains the ability to push the baby out of the birth canal. This technique helps mothers to reduce the painful labor, it's systemic effects and encourages the maternal women for vaginal delivery, also decrease the rate of cesarean section and observed highly recently in Yemen with its complications e.g. intraoperative complications as: Infections, organ injury (bladder, intestines, ureteretc.) ,need for blood transfusions and may hysterectomy as a treatment for severe bleeding, e.g. from placenta previa also: postoperative complications, thromboembolic complications (embolism, thrombosis), adhesions and persistent pain,etc. (**Mylonas and Friese,2015**). The aim of pain relief in labor is to render parturient relatively pain free whilst still able to participate in the birth experience and contractions. Ideally there should be no associated side effects or risks to both mother and baby. There are several methods of pain relief available divided into two groups: Non-pharmacological and pharmacological.

2.6.2. Non-pharmacological:

Pain management techniques can be used during labor and delivery to help reduce discomfort and promote a more comfortable birthing experience. Here are a few examples:

2.6.2.1. Breathing techniques:

Deep breathing, slow breathing, and patterned breathing can help relax the body and distract from the pain.

2.6.2.2. Relaxation techniques:

Techniques such as progressive muscle relaxation, visualization, and guided imagery can help reduce tension and promote a sense of calm.

2.6.2.3. Water immersion:

Immersion in a warm water tub or taking a shower can provide pain relief and relaxation during labor.

2.6.2.4. Massage and counter-pressure:

Gentle massage and applying pressure specific areas, such as the lower back or hips, can help alleviate pain and provide comfort.

2.6.2.5. Position changes:

Changing positions frequently, such as walking, squatting, or using a birthing ball, help relieve pressure and discomfort.

2.6.2.6. Acupuncture or acupressure:

These techniques involve stimulation specific points on the body to help alleviate pain and promote relaxation.

2.6.3. Pharmacologic pain relief during labor:

Pharmacologic options for pain relief during labor can be divided according to route of administration, systemic and regional (epidural). In this section we will focus on regional agents.

2.6.3.1. Inhalation analgesic:

Inhaled nitrous oxide (N₂O): N₂O has been used worldwide for labor analgesia for several decades. Its analgesic effect is achieved by stimulation of neuronal release of endogenous opioid peptides (dynorphins) and activation of postsynaptic opioid receptors. The commonly used blend is a combination of 50% N₂O with 50% oxygen taken by a self-administered facial mask. Correct timing of inhalation is essential because analgesic effect takes 30 to 60 seconds. N₂O is rapidly cleared from the blood of the mother and the newborn, which makes it safe to use throughout labor. It does not influence labor progress, mode of delivery, or neonatal outcome. Adverse effects associated with N₂O use, such as nausea, dizziness, and drowsiness, have been reported. Furthermore, N₂O is a greenhouse gas and is considered an environmental pollutant.

2.6.3.2. Parenteral opioids:

Nalbuphine and butorphanol: Are mixed agonist-antagonists and are thus, associated with less neonatal respiratory depression.

2.6.3.3. Morphine: Morphine is less commonly used for pain relief during labor because the dose needed to achieve a sedative effect. Fentanyl and remifentanyl are used for pain relief during labor but owing to their short duration of action they are more suitable for patient-controlled analgesia use.

2.6.3.4. Fentanyl:

fentanyl is a fast-onset and short-acting synthetic opioid, especially with intravenous administration. This drug can also be administered nasally and carries less risk of maternal adverse effects, including sedation, nausea, vomiting, and pruritus, than meperidine. One of its major advantages is that unlike meperidine or morphine fentanyl, it hardly crosses the placenta, although, there are reports on neonatal respiratory depression following its administration, fentanyl and remifentanyl.

2.6.3.5. Tramadol:

Tramadol a synthetic of codeine, inhibits norepinephrine and serotonin reuptake and binds to μ -opioid receptors, resulting in inhibitory effect on pain transmission in the spinal cord. Several studies showed that tramadol provides effective analgesia without maternal and neonatal respiratory depression that are related to opioid use. Tramadol seems to be a less efficient pain reliever compared with intramuscular meperidine; nevertheless, more women reported sleepiness with meperidine use. Request for additional analgesia, cesarean delivery rate, and the Apgar scores are comparable between the 2 agents. When compared with intravenous acetaminophen, both provide comparable analgesia during active labor. Rate of maternal adverse effects (particularly nausea and vomiting) are higher with tramadol use.

2.6.3.6. Acetaminophen:

The fact that opioid use is associated with maternal and neonatal adverse effects led to the search for other options for intrapartum analgesia. Intravenous acetaminophen is an effective, low-cost option for postoperative pain relief, and its IV use has been proven to be safe with no need for special monitoring IV acetaminophen 1000 mg for labor analgesia has been studied in several trials. It provides modest pain reduction compared with placebo and similar effectiveness compared with IV opioids, with fewer maternal adverse effects.

2.6.3.7. Patient-controlled analgesia (PCA): Patient-controlled analgesia with intravenous administration of opioid analgesics was assessed for obstetric pain as early as 1970. The patient's ability to control the analgesic administration may produce pharmacological as well as psychological benefits.

2.7. Parenteral Opioids Effects on mother and fetus

Effects on mother: The inadequacy of analgesia associated with parenteral opioids is more likely to lead to hyperventilation. This will lead to a lowered maternal PaCO₂, that may produce a reduction in utero-placental blood flow. Relative overdose of opioids may lead to hypotension, which is further aggravated by posture and noncanal occlusion. Parenteral opioids cause delayed gastric emptying, which may already have been impeded by labor itself. Furthermore, opioids administered during labor cause nausea and vomiting, from a central action.

Effects on fetus/neonate: The immature respiratory center is more sensitive to the opioid analgesics. Thus, the analgesics cause respiratory depression after crossing the placenta. Opioid analgesics do not tend to have any primary effect on the cardiovascular system of the neonate but may cause bradycardia secondary to opioid-induced respiratory depression so it isn't preferred.

2.8. Regional analgesia:

2.8.1. Epidural Labor:

epidurals do not increase caesarean section rates, but marginally prolong the second stage of labor and increase assisted vaginal delivery rates.¹² Labor epidurals improve maternal pain and satisfaction scores in comparison to systemic analgesics and are the most effective analgesic option for labor. Modern labor epidural dosing regimens (e.g. 0.0625% to 0.1 % bupivacaine with 2-4 mcg/ml fentanyl or 0.4 mcg/ml sufentanil) reduce the total local anesthetic dose required and motor block experienced; potentially allowing the parturient to be ambulatory.

There are several different regimes for administering Labouré epidural analgesia. Current practices are: intermittent physician or nurse bolus, Patient Controlled Epidural Analgesia (PCEA), Programmed Intermittent Epidural Boluses (PIEB) or continuous infusions. Labouré epidurals provide safe continuous analgesia throughout Labouré and can be converted with higher concentration local anesthetic top-up to anesthesia for operative delivery.

2.8.2. Combined Spinal-Epidural (CSE):

A CSE combines rapid onset of analgesia from the spinal component, with the benefit of continuing Labouré analgesia with the epidural catheter. A CSE can be performed as an individual single-shot spinal followed by placement of an epidural catheter as a separate technique (see below), or with a needle-through-needle technique. For dosing of the CSE 's spinal component, please see single-shot spinal section below.

2.8.3. Dural Puncture Epidural (DPE):

An alternative for laboring parturient is the DPE technique. This technique is similar to a CSE, performing an intentional dural puncture with a spinal needle but without administering intrathecal drugs. DPE avoids the potential hemodynamic instability caused by intrathecal local anesthetics and enhances Labouré analgesia when compared with standard epidural techniques.¹⁶ DPE improves analgesia compared with epidurals alone by —epidural rentl of the intrathecal space; when there is a puncture in the dura the anesthetic can flow from the epidural space into the intrathecal space. This technique, along with the CSE technique allows partial confirmation of epidural catheter placement, e.g. cerebrospinal fluid (CSF) is seen in the spinal needle placed through the epidural needle, and therefore the epidural catheter itself is more likely to be midline. The DPE technique is not currently widely practiced.

2.8.4. Single-shot spinal:

In previous study, we found that 2.5 mg of bupivacaine and plus 25 µg fentanyl is more preferable option for single shot of spinal anesthesia (Bilge et al, 2017). Only preservative-free local anesthetic solutions are used. The addition of vasoconstrictors (adrenergic agonists, epinephrine [0.1-0.2 mg]) and opioids enhance the quality or prolong the duration of spinal anesthesia, or both. Vasoconstrictors seem to delay the uptake of local anesthetics from CSF and may have weak spinal analgesic properties. Opioids and clonidine can likewise be added to spinal anesthetics to improve both the quality and duration of the subarachnoid block. (Bilge et al, 2017). In our study use:

Single-shot of spinal analgesia by spinal needle 26-gauge, insertion in subarachnoid space between lambar 3-4, with combination drug: Heavy Marcaine 3-5mg (0.5-1ml), 25mcg fentanyl, 20mcg Adrenaline and 0.5ml normal saline. With this combination lead to sensory nerve block only. duration of analgesia 4 to 6 hours.

2.9. Previous Studies:

A previous study conducted in the UK examined maternal satisfaction during childbirth and the effects of different types of regional analgesia. Cooper et al. (2010) conducted a randomized controlled trial comparing low-dose and traditional epidurals with a non-epidural comparison group. The study found that satisfaction with spontaneous vaginal delivery was the primary factor influencing maternal satisfaction, regardless of the type of analgesia used. Overall, women reported similar levels of satisfaction with the childbirth experience across all three techniques. However, the combined spinal-epidural technique was associated with higher satisfaction regarding pain relief speed and mobility compared to the low-dose infusion. Additionally, women who received combined spinal-epidural analgesia felt a greater sense of control during labor. The study concluded that mobile epidurals enhance women's perception of control and are a preferred choice for regional analgesia.

In other previous study conducted in Taiwan, Cheng et al. (2020) investigated the impact of a prenatal shared decision-making (SDM) intervention on parturient' satisfaction with epidural analgesia. The study aimed to determine whether providing information and education earlier in the pregnancy improved understanding and satisfaction compared to the conventional explanation provided after labor pain began. The SDM group received health education and access to videoclips explaining epidural analgesia during the 28th week of gestation, while the routine practice group received the explanation after admission for delivery. The results showed that the SDM group reported higher satisfaction with and understanding of epidural analgesia, as well as greater satisfaction with the information received and the quality of pain relief. The study concluded that early prenatal SDM interventions with comprehensive information increased parturient' comprehension and satisfaction with epidural analgesia services.

Also, Pietrzak et al. (2022) conducted a cross-sectional survey study to evaluate labor pain control and women's satisfaction with different pain management interventions. The study involved 500 women who gave birth in hospitals of various reference levels in Boland. The survey assessed pain intensity before and after using non-pharmacological and pharmacological interventions, and measured women's satisfaction with labor pain management. The findings revealed that both non pharmacological and pharmacological methods resulted in a significant reduction in pain intensity. Water immersion and epidural anesthesia were found to be the most effective non-pharmacological and pharmacological methods, respectively. The study also highlighted those women giving birth in hospitals with higher reference levels had better control of labor pain due to access to pharmacological methods. Epidural anesthesia was the most commonly used method and was associated with higher satisfaction. The study emphasized the importance of hospital reference level in determining the availability and effectiveness of pain management options and its impact on women's satisfaction with childbirth.

CHAPTER THREE

Methodology

3_ MATERIAL AND METHODS

3.1. Study design:

To achieve our research objectives, a descriptive retrospective study was conducted to evaluate satisfaction and outcomes of single-shot of spinal analgesia technique for labor pain relieve among women in Sana'a city.

3.2. Study setting (location and period):

The study was carried out at hospitals (Modern German Hospital, Al-Thawra Hospital, Al Mawada Hospital and Shamlan Specialized Hospital) in Sana'a City, during 23 months (From Jan 2023 to Dec 2024).

3.3. Study Population:

All women admitted for normal vaginal delivery agreed to undergo single shot of spinal analgesia as technique for labor pain relieve were enrolled in the study.

3.4. Sample Size & Sampling method:

-The sample size: was calculated using the statically tool for sample size and power for population survey of the **(Epi-Info program, version, 7.2.3.1)** and considering the following:

- Confidence interval = 95%
- Population size = 122
- Expected frequency (Level of satisfaction and outcomes of painless labor among women) = 50%.
- Confidence limits = 5% based on the study conducted.
- The sample size = 104 women.

- Sampling method:

A non-random purposive sampling technique used to select the sample for the current study.

3.5. Inclusion and exclusion criteria:

3.5.1. Inclusion criteria of nurses:

- All women over the 18 years old were included.
- The study was enrolled all pregnant women beyond the 37th week of gestation with a single pregnancy and multiple pregnancies.
- All women who agreed to participate in the study were included.
- All women who were admitted for vaginal delivery under single-shot of spinal analgesia.
- All women who gave consent to complete the survey.
- All women who had a complete file of required data at the time of the study were included.

3.5.2. Exclusion criteria of cases:

- All women under the age of 16 years.
- Inability to assess pain according to Numeric rate scale (NRS).

- All women who were indicated for elective or emergency caesarean section.
- All women refused to participate in the survey for privacy reasons.
- All women who had an incomplete file of required data at the time of the study were excluded.
- All women absolute or relative contraindication for regional analgesia.

3.6. Satisfaction scale method:

effectiveness was assessed by women according to NRS before and after using the method. NRS ranged from 0 to 10, where (NRS 0 = no pain, NRS 10 = unimaginable pain, NRS 1–3 = mild pain, NRS 4–6 = moderate pain and $\text{NRS} \geq 7$ = severe pain).

Women's satisfaction was measured with a 5-point Likert scale as follows:

- 1-High unsatisfied
- 2-Unsatisfied
- 3-Neutral
- 4-Satisfied
- 5-High satisfied

3.7. Satisfaction scale method:

NO	Level	Wight	RII	Level
1	Weak	High unsatisfied	0 – 0.2	Low
2	Weak & moderate	Unsatisfied	0.2 – 0.4	
3	Moderate	Neutral	0.4 – 0.6	Moderate
4	Moderate & high	Satisfied	0.6 – 0.8	High
5	High	High satisfied	1 – 0.8	
Satisfaction scale method table				

3.8. Study variable:

3.8.1. Dependent variables:

The level of satisfaction and outcomes of painless labor among Women.

3.8.2. Independent variables:

Age, Residence, Educational level, Number of parity and birth and ABGAR score.

3.9. Data collection tools:

One tool was used for data collection.

Questionnaire tool:

Interview and calling structured questionnaire were developed by the researcher.

The questionnaire covered:

Part I: Socio- demographic data of Women: (Age, Parity, Education Level, Apgar score, Residence .et).

Part II: patient Satisfaction with technique outcome in reducing pain (NRS).

Part III: Technique effect on mother and baby.

3-10-Validity and reliability of questionnaire: A questionnaire was designed according to the specific objectives of the research, the validity of the English and Arabic version of the questionnaires was reviewed by expert's senior in Anesthesiology, Obstetrics specialist, Research methods, and statistician. After reviewing the tools depending on the several previous studies, for example: (Cheng et al., 2020 & Pietrzak et al., 2022 & (Cooper et al., 2010).

Also, other questions added was formulated by the researchers with the help of literatures, supervisor and experts. will be make modified to add or omit to clearly and correct misinterpreted and doubtlessness from credence and completeness of study tools. The reliability by using Cronbach's Alpha that was 7, tool was found to be highly reliable for data collection.

3.11. Data Management Plan:

Once the data collection was collected, a codebook was developed to provide numerical results for analysis. Information from the tool was original data. All available data will be organized into tables for analysis. a packaged computer analysis program, statistical package for the social science (SPSS Version 28) was used for statistical analysis of this data. Descriptive measures, including frequency, percentage, arithmetic mean and standard deviation, p-value, was presented and chi-square.

3.12. Ethical Consideration:

- Approval was obtained from the questionnaires from 21 September University of Medical & Applied Sciences to the selected hospitals.
- A cover letter was sent to principles of hospital. also was obtain approval hospital managers and institutional ethics committee to conduct this study.
- The purpose and benefits of the study was explained women participants.
- Oral approval was obtained from women in the study.
- Verbal ethical approval was taken from women participating in the study.
- All women also have the right to refuse to participate or to withdraw from the study finally.
- All data obtained was confidential and will not be used for purposes other than scientific research.

CHAPTER FOUR

RESULTS

4_ CHAPTER FOUR: RESULTS

4.1. Overview

This chapter presents the results of the field research by presenting the responses of the research sample to the research questions and hypotheses, and statistically analyzing them using the social science statistical package SPSS v28. Out of the distributed questionnaires, a total of 104 were retrieved with a response rate of 87.40%

Table (4.1): Distribution of study sample according to hospital.

Variable	Category	N	%
Name of the hospital	Modern German Hospital	49	47.1%
	Almawaddah Hospital	41	39.5%
	Shamlan Specialized Hospital	14	13.4%
	Total	104	100%

Table (4.1) and figure (4.1) the distribution of the study sample according to hospital name. It is evident that half of the participants (n=41), in the study were from Al Mawaddah Hospital, accounting for (39.5%), followed by the Modern German Hospital (n=49), with a percentage of (47.1%), then Shulman Specialized Hospital (n=14) with a percentage of (13.4%).

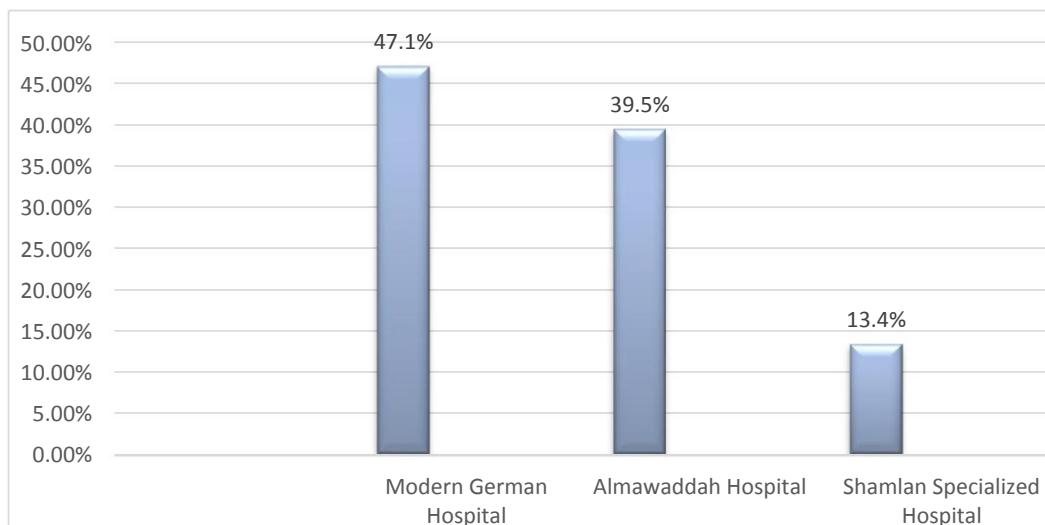


Figure (4. 1): Distribution of study sample according to hospital.

Variable	Category	N	%
Age	Years 20-25	34	32.7%
	25-30	37	35.6%
	30-35	24	23%
	36<	9	8.7%
	Total	104	100%
Residence	Rural	11	10.5%
	Urban	93	89.5%
	Total	104	100%
Educational Level	Illiterate	2	2%
	Read and write	10	9.6%
	School	67	64.4%
	University	24	23.%
	Master	1	1%
	Total	104	100%

Number of pregnancies and births	Once	50	48%
	Twice	30	28.9%
	More than twice	24	23.1%
	Total	104	100%
Previous labor	Labor pain less	10	9.6%
	Labor painful	40	38.5%
	Section-C	7	6.7%
	Primigravida	47	45.2%
	Total	104	100%

Table (4.2)

Table (4.2) and figures (4.1) the distribution of the study sample according to personal data. Regarding the distribution of the study sample by age, it ranged from 20 to 40 years, with a median age of 25 and a standard deviation of 0.91. Nearly half of the participants in the study were in the age group of 25 -30 years with a percentage (35.6%) ,followed by the age group of 20-25 years with (32.7%) ,then the age group of 30-35 years with a percentage (23%)and finally ,the smallest percentage was for the age group over 35 years ,with a percentage (8.7%) .Concerning the distribution of the study sample by place of residence ,the majority of participants in the study were urban residents ,accounting for (89 .5%) , compared to only (10. 5%) residing in rural areas. Additionally, based on the distribution of the study sample by educational level, more than half of the participants in the study had intermediate education, accounting for (64.4%), followed by university education with (23%) followed by "reads and writs" with (9.6%) while only (1.0%) of the participants had higher education "master's degree ". finally, smallest percentage of participants were illiterate, accounting for only (2%) moreover, half of the participants in the study had only one previous childbirth and pregnancy, accounting for (48%), followed by twice with (28.9%) then (23.1%) more than twice.

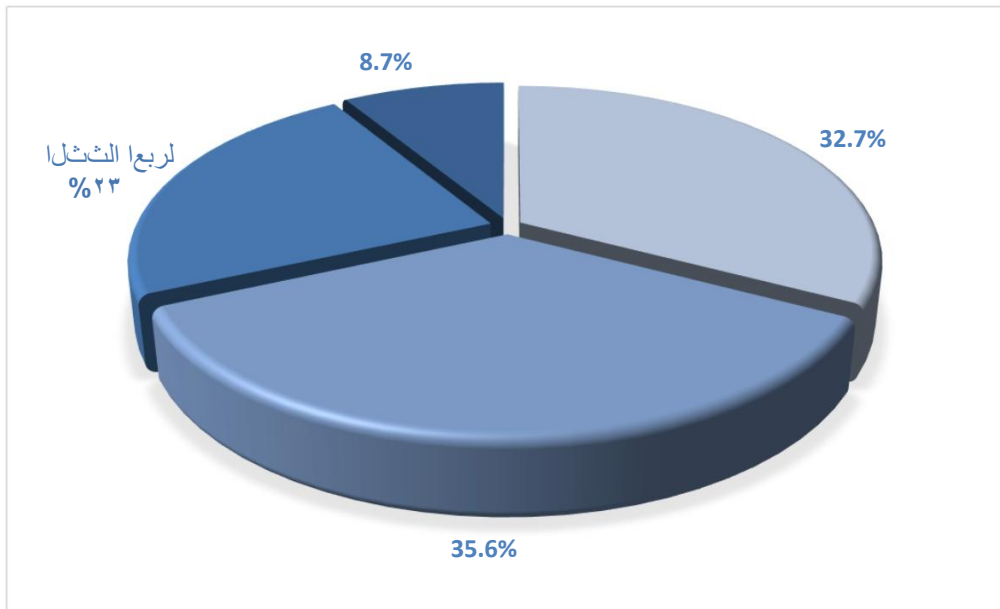


Figure (4.2)

Figure (4.2): Distribution of study sample according to Age.

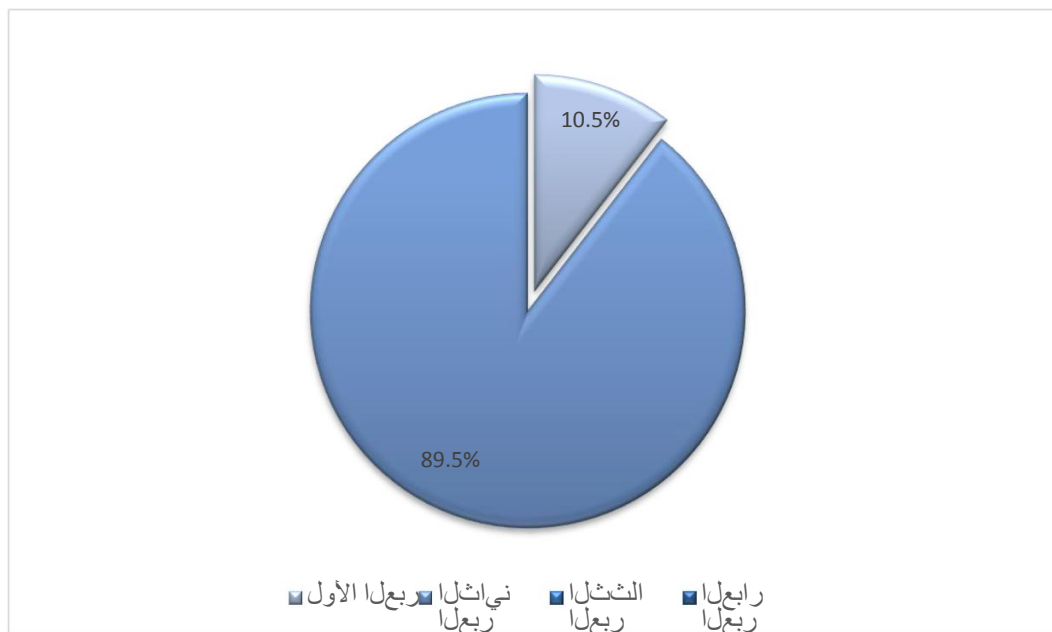


Figure (4.3)

Figure (4.3) Distribution sample according to residence.

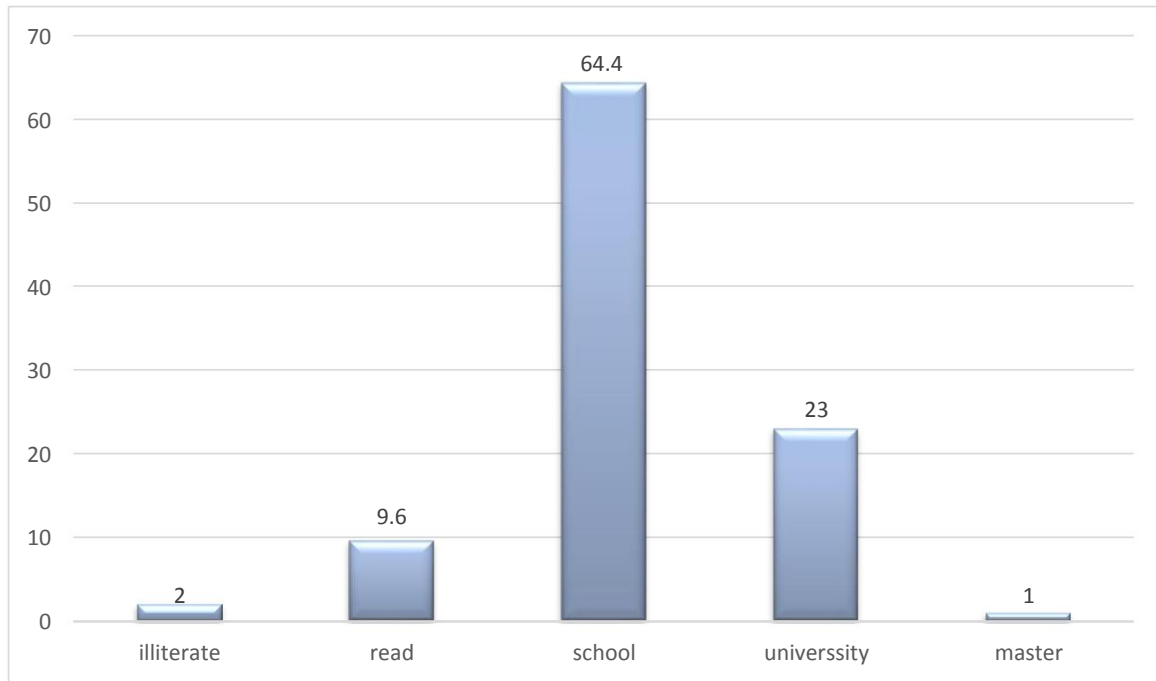


Figure (4.4):

Figure (4.4): distribution of study sample according to education level

Table (4.3) satisfaction level with pain less labor by single –shot among participating women the study. N= (104

Question	Unsatisfied		High unsatisfied		Neutral		Satisfied		High satisfied		total			RII	Level satisfied
	N	%	N	%	N	%	N	%	N	%	total	mean	S. D		
How satisfied are you with the information provided by the anesthesiologist about the spinal injection before the procedure?	0	0	0	0	2	2%	47	45 %	55	53%	104	4.42	0.52	88.40%	High
How satisfied are you with the effectiveness of the spinal injection in relieving labor pain caused by contraction during the active phase of labor?	0	0 %	0	0%	4	4%	47	45 %	53	51%	104	4.38	0.57	87.60%	High

How satisfied are you with the effectiveness of the spinal injection in relieving pain during the pushing stage of labor and the baby's head?	0	0 %	1	1%	4	4%	51	49 %	48	46%	104	4.23	0.6	84.60%	High
How satisfied are you with the effectiveness of the spinal injection in relieving pain after childbirth?	0	0 %	1	1%	1	1%	48	46 %	54	52%	104	4.35	0.57	87.00%	High
How satisfied are you with the support and care provided by the anesthesia team in handling you during childbirth?	0	0 %	0	0%	1	1%	45	43 %	58	56%	104	4.42	0.52	88.40%	High
How satisfied are you with support and care provided by midwives and obstetricians in dealing with your pain and exhaustion during childbirth?	0	0 %	0	0%	0	0%	43	41 %	61	59%	104	4.47	0.5	89.40%	High
How satisfied are you with support and care provided by midwives and obstetricians in dealing with your pain and exhaustion after childbirth?	0	0 %	0	0%	1	1%	45	43 %	58	56%	104	4.42	0.52	88.40%	High
Total satisfaction level												4.37	0.034	87.40%	High

Table (4.3)

The results of the [table \(4.3\)](#) indication that measuring the satisfaction level with pain less labor by single shot among women showed:

1- satisfied with information gave by anesthesiologist was 45% (n=47) and the high satisfied was information 53% (n= 55).

2-satisfied with the effectiveness of the back needle (single-shot) in relieving labor pain resulting labor pain resulting from birth contraction was 45%(n=47) and the high satisfied was 51% (n=53).

3-satisfied with the effectiveness of the back needle (single-shot) in relieving pain during the pushing phase when the baby head was 49% (n=51) and high satisfied was 46% (n=48).

4-satisfied with the effectiveness of the back needle (single- shot) in reliving after childbirth was 46% (n=48) and high satisfied was 56% (n=58).

5-satisfied with the support and care of the anesthesia staff in dealing during childbirth was 43% (n=45) and high satisfied was 56%(n=58).

6-satiafied with the support and care of midwives and obstetricians and gynecologist in dealing with pain and fatigue during childbirth was 41%(n=43) and high satisfied was 59% (n=61).

7- satisfied with the support and care of the anesthesia staff in dealing during childbirth was 43%(n=45) and high satisfied was 56% (n=58).

Table (4.4) show information about the effectiveness of single –shot in pain relief before, during, and after childbirth (n =104)

	Category	N	%
Number of attempts made until to the back needle was successful (single-shot):	One Attempt	90	86.6%
	Two Attempt	10	9.6%
	Not sure	4	3.8%
	total	104	100%
Duration of labor after receiving the spinal needle.	One hour	45	43.3%
	Two hours	32	30.7%
	Three hours	15	14.4%
	Four hours	12	11.6%
	Total	104	100%
Duration of pain relief after receiving a back needle	One hour	7	6.8%
	Two hours	11	10.6%
	Three hours	24	23%
	Four hours	16	15.3%
	More than four hours	46	44.3%
	total	104	100%

Table (4.4)

The results showed that 86.6% (n=90) of the respondents reported success with Single-shot analgesia on the first attempt, followed by 9.6% (n=10) on the second attempt, while 3.8% (n=4) were uncertain. Additionally, the duration of labor after receiving Single-shot analgesia was as follows: 43.3% (n=45) experienced it within the first hour, followed by 30.7% (n=32) within two hours, 14.4% (n=15) within three hours, and 11.6% (n=12) within four hours. Furthermore, the results

indicated that the pain relief duration after receiving Single-shot analgesia was more than four hours for 6.8% of the respondents (n=7), followed by two hours for 10.6% (n=11), while 23% within three hours (n=24), 15.3% (n=16) within four hours, and 44.3% for more than one hour (n=46).

4.6. Results of painless labor by Single-shot According to:

Table: (4.5) Results of painless labor by Single-shot technique According to the Numeric Rate scale (NRS) N= (104)

Table: (4.5)

NRS	No pain 0		Mild pain 1-3		Moderate 4-6		Severe 7-9		In worst case 10		Total	
	N	%	N	%	N	%	N	%	N	%	Mean	S. D
NRS before performing the single-shot	0	0%	2	2%	3	3%	30	29%	69	66%	4.65	0.6
NRS after 30 min	25	24%	35	34%	30	29%	0	0%	1	1%	2.15	0.85
NRS after 90 min	45	43%	25	24%	20	19%	0	0%	0	0%	1.7	0.8
NRS after 150 min	50	48%	35	34%	5	5%	0	0%	0	0%	1.55	0.65
NRS after 270 min	38	37%	50	48%	2	2%	1	1%	0	0%	1.6	0.7
											2.33	0.72

The information provided about the outcomes of pain relief techniques according to the (NRS) among 104 participants indicated that 66% of them felt intolerable pain (score 10) during childbirth before receiving the Single-shot (n=69), with a mean of 4.65, and 29% reported severe pain (score 7-9) (n=30). However, it was observed that at 30, 90, and 150 minutes after receiving the Single-shot, the NRS measurements reported no pain (score 0) for 24% (n=25), 43% (n=45), and 48% (n=50) of the women, respectively. Additionally, mild pain (score 1-3) was reported by 34% (n=35), 24% (n=25), and 34% (n=35) of the women at 30, 90, and 150 minutes, respectively. Moderate pain (score 4-6) was reported by 29% (n=30), 19% (n=20), and 5% (n=5) of the women at the same time intervals. Furthermore, responses from participants regarding the level of pain felt after 270 minutes of receiving the Single-shot indicated that 37% (n=38) reported no pain, while 48% (n=50) reported mild pain.

4.7. The effects of Single-shot spinal analgesia on mother:

Table (4.6): Results of painless labor by Single-shot pain According to Side Effects and Possible Complications N= (104).

COMPLICATION	Yes		No		Total	
	N	%	N	%	Mean	S. D
Nausea	4	4%	100	96%	1.98	0.16
Dizziness	1	1%	103	99%	1.91	0.28
Mild hypotension	5	5%	99	95%	1.93	0.27
Headache	15	15%	89	86%	1.85	0.36
Numbness	3	3%	101	97%	1.99	0.11
Itching	6	6%	98	94%	1.93	0.27
No side effects	60	58%	44	42%	1.59	0.5
					1.858	0.302

Table (4.6)

The table (4.6) indicates information provided about the outcomes of pain relief techniques according to possible side effects among 104 participants. Regarding side effects, 58% of respondents reported no side effects (n=60), while 42% reported experiencing side effects (n=44).

Distributed as following: mainly, headache with a percentage of 15% (n=15), while 6% reported experiencing itching (n=6), with a mean of 1.93 and a standard deviation of 0.27. Moreover, 5% reported mild hypotension (n=5), with a mean of 1.93 and a standard deviation of 0.27, which can be treated by good fluids (1000-1500ml) and 5mg IV Ephedrine. Also, numbness at the first 20 minutes after performing the single-shot of spinal analgesia was reported by only 3 patients (3%), none of whom had dizziness.

4.8. Results of painless labor by Single-shot pain According to the Baby's Vital Signs Scale (APGAR Scale)

Table (4.7): Results of painless labor by Single-shot technique According to the APGAR Score for Newborns N= (104)

APGAR	Mean	Std. deviation
APGAR score at the 1min of birth	8.55	0.65
APGAR score at the 5min of birth	9.85	1.1

Table (4.7)

Regarding the assessment of the outcomes of the Single-shot technique according to the APGAR scale for the 104 newborns within the first minute after birth, the mean score was 8.55 with a standard deviation of 0.65, indicating normal vital signs without any complications. Similarly, regarding the assessment of the outcomes of the Single-shot spinal technique according to the APGAR scale for the newborns within the first five minutes after birth, the mean score was 9.85 with a standard deviation of 1.10, also indicating normal vital signs.

4.9. Participants' Perspectives on the Experience of painless labor by Single-shot of analgesia

Table (4.8): Participants' opinions on the experience of giving birth naturally without epidural anesthesia N= (104)

Questions	Category	N	%
Do you intend to experience pain-free childbirth using a spinal needle in the future ??	Yes	80	76.90%
	No	2	1.90%
	Unsure	22	21.20%
	Total	104	100%
Do you advise other pregnant mother to try a back needle to relive labor pain ??	Yes, I recommend	100	96.20%
	I do not recommend	4	3.80%
	Total	104	100%

Table (4.8)

Regarding the experience of painless labor using a spinal needle in the future, 76.9% responded "yes," followed by "unsure" at 21.2%, and only 1.9% responded "no." Meanwhile, 96.2% of the respondents agreed to advise pregnant mothers to consider using the Single-shot technique for pain relief during childbirth, while 3.8% did not recommend it.

4.10. The relationship between satisfaction and demographic variables.

K2	Mean $\pm$ S. D	P. value
Age group	375 $\pm$ 4.40	0.06
Name of the hospital	375 $\pm$ 0.65	0.002
Number for pregnancy and births	0.38 $\pm$ 0.15	0.06
Education level	125 $\pm$ 0.25	0.06
Place of residence	0.52 $\pm$ 0.65	0.06
Previous labor	0.52 $\pm$ 0.69	0.005

Table (4.9)

From the table above, it is evident that the p-value is greater than the confidence level (0.05) for the variable of age (p-value = 0.06). Therefore, we say that there is no statistically significant difference in satisfaction with painless labor among women attributed to age. However, through the second axis, it is shown that the p-value is less than the confidence level (0.05) for the hospital name variable (p-value = 0.002). Thus, we conclude that there is a statistically significant difference in satisfaction with painless labor among women attributed to the hospital name. Moreover, from the table above, the p-value is greater than the confidence level (0.05) for the variable of the number of previous pregnancies and deliveries (p-value = 0.06). Hence, we conclude that there is no statistically significant difference in satisfaction with painless labor among women attributed to the number of previous pregnancies and deliveries. Similarly, the p-value is greater than the confidence level (0.05) for the educational level variable (p-value = 0.06). Therefore, we conclude that there is no statistically significant difference in satisfaction with painless labor among women attributed to educational level. Furthermore, the p-value is greater than the confidence level (0.05) for the variable of place of residence (p-value = 0.06). Thus, we state that there is no statistically significant difference in satisfaction with painless labor among women attributed to the place of residence. However, through the second axis, it is shown that the p-value is less than the confidence level (0.05) for the variable of previous labor (p-value = 0.005). Therefore, we conclude that there is a statistically significant difference in satisfaction with painless labor among women attributed to previous labor experience. Table (4.9): the relationship between satisfaction and demographic data.

Case	df	Mean square	F	P. value
Number of attempts	2	0.09	0.63	0.55
Duration of labor	3	0.25	1.85	0.16
Duration of pain relief	4	0.39	3.1	0.025

4.11. single-shot of spinal analgesia before, during, and after childbirth.

Table (4.10)

From the table above, it is evident that the p-value is greater than the confidence level (0.05) for the variable of the number of attempts made until the success of the Single-shot injection (p-value = 0.55). Therefore, we conclude that there is no statistically significant difference in satisfaction with painless labor among women attributed to the number of attempts. Similarly, the p-value is greater than the confidence level (0.05) for the variable of the duration of labor after receiving the Single-shot injection (p-value = 0.16). Thus, we conclude that there is no statistically significant difference in satisfaction with painless labor among women attributed to the duration of labor. Moreover, the p-value is greater than the confidence level (0.05) for the variable of the duration of pain relief after receiving the Single-shot injection

(p-value = 0.025). Hence, we conclude that there is no statistically significant difference in satisfaction with painless labor among women attributed to the duration of pain relief.

4.12. the relationship between satisfaction with painless labor among women and information about pain relief techniques according to the degree of pain (NRS).

NRS	Group1(n=104)	P. value
Before performing the back needle	3.8 ± 4.40	0.005
Min 30	8.35 ± 2.150	0.001
Min 90	82 ± 1.70	0.001
Min 150	60 ± 1.55	0.001
Min 270	59 ± 1.65	0.001

Table (4.11)

It is evident from the table above that the p-value is less than the confidence level (0.05) for the variable of the level of pain experienced by mothers before receiving the intervention (Single-shot analgesia). Therefore, we conclude the presence of statistically significant differences in pain levels among women before receiving the intervention. Similarly, it is evident from the table above that the p-value is less than the confidence level (0.05) for the variable of the level of pain experienced by mothers after 30 minutes of receiving the intervention. Hence, we conclude the presence of statistically significant differences in pain levels among women attributed to the intervention after 30 minutes. Furthermore, the table above indicates that the p-value is less than the confidence level (0.05) for the variable of the level of pain experienced by mothers after 90 minutes of receiving the intervention. Consequently, we conclude the presence of statistically significant differences in pain levels among women attributed to the intervention after 90 minutes. Similarly, it is evident from the table above that the p-value is less than the confidence level (0.05) for the variable of the level of pain experienced by mothers after 150 minutes of receiving the intervention. Therefore, we deduce the presence of statistically significant differences in pain levels among women attributed to the intervention after 150 minutes. Finally, the table above indicates that the p-value is less than the confidence level (0.05) for the variable of the level of pain experienced by mothers after 270 minutes of receiving the intervention. Hence, we conclude the presence of statistically significant differences in pain levels among women attributed to the intervention after 270 minutes.

4.13. the relationship between satisfaction and outcomes use Single-shot shot of spinal analgesia to side effects and Possible Complications. Table: (4.12)

Side effects and complication	Mean $\pm$ S. D	P. value
Nausea	1.98 $\pm$ 0.16	0.88
Dizziness	1.91 $\pm$ 0.28	0.65
Hypotension	1.93 $\pm$ 0.27	0.52
Headache	1.85 $\pm$ 0.36	0.035
Weakness of leg	1.99 $\pm$ 0.11	0.002
Itching	1.93 $\pm$ 0.27	0.125
No side effects	1.59 $\pm$ 0.50	0.007

Table: (4.12)

It is evident from the table above that the p-value is greater than the confidence level (0.05) for the variable of nausea, with a mean score of 1.98 ± 0.16 . Therefore, we conclude that there are no statistically significant differences in the occurrence of nausea among the study participants. Similarly, it is evident from the table above that the p-value is greater than the confidence level (0.05) for the variable of dizziness, with a mean score of 1.91 ± 0.28 . Hence, we conclude that there are no statistically significant differences in the occurrence of dizziness among the study participants. Furthermore, the table above indicates that the p-value is greater than the confidence level (0.05) for the variable of hypotension, with a mean score of 1.93 ± 0.27 . Consequently, we conclude that there are no statistically significant differences in the occurrence of hypotension among the study participants.

However, it is evident from the table above that the p-value is less than the confidence level (0.05) for the variable of headache, with a mean score of 1.85 ± 0.36 . Therefore, we deduce the presence of statistically significant differences in the occurrence of headache among the study participants.

Similarly, the table above indicates that the p-value is less than the confidence level (0.05) for the variable of weakness of the leg, with a mean score of 1.99 ± 0.11 . Hence, we conclude the presence of statistically significant differences in the occurrence of weakness of the leg among the study participants.

On the other hand, it is evident from the table above that the p-value is greater than the confidence level (0.05) for the variable of itching, with a mean score of 1.93 ± 0.27 . Therefore, we conclude that there are no statistically significant differences in the occurrence of itching among the study participants. Finally, the table above indicates that the p-value is less than the confidence level (0.05) for the variable of no side effects, with a mean score of 1.59 ± 0.50 . Consequently, we conclude the presence of statistically significant differences in the absence of side effects among the study participants.

4.14 the relationship between satisfaction and outcomes uses Single-shot of spinal analgesia to baby's vital signs (APGAR SCORE). Table (4.13) T-Test

Satisfaction	Mean $\pm$ S. D	P. value
APGAR Score at 1 minute of birth	8.55 $\pm$ 0.65	0.001
APGAR Score at 5 minutes of birth	9.85 $\pm$ 1.10	0.001

Table (4.13) T-Test

It is evident from the table above that the p-value is less than the confidence level (0.05) for the variable of measuring the baby's vital signs one minute after birth according to the Apgar scale. Therefore, we can conclude that there is a statistically significant difference between satisfaction with childbirth and the baby's vital signs attributed to the level of vital signs. Similarly, it is evident from the table above that the p-value is less than the confidence level (0.05) for the variable of measuring the baby's vital signs five minutes after birth according to the Apgar scale. Hence, we can conclude that there is a statistically significant difference between satisfaction with childbirth and the baby's vital signs attributed to the level of vital signs.

CHAPTER FIVE

Discussion

5_ CHAPTER FIVE: DISCUSSIO

5.1. DISCUSSION:

Our current study revealed a high level of satisfaction (87.40%) among women who underwent painless labor. This aligns with the findings from **Cooper et al. (2010)** in the UK, where spontaneous vaginal delivery itself emerged as a significant factor in maternal satisfaction, regardless of the specific pain management technique used. Both studies suggest that a successful childbirth experience, achieved through painless labor or spontaneous vaginal delivery, is a key determinant of maternal satisfaction.

However, our study also identified a link between satisfaction and the hospital where the procedure occurred and the number of prior deliveries. This finding is not directly addressed in the UK or Taiwan studies, which focused on specific pain management techniques and prenatal education, respectively. Further research is needed to explore how hospital protocols, staff expertise, and individual patient experiences within a particular hospital setting might influence satisfaction with painless labor in Sana'a.

The Taiwan study by **Cheng et al. (2020)** highlights the importance of patient education. While our study did not assess the role of prenatal education, it suggests an area for future investigation. Implementing a prenatal education program similar to the one in the Taiwan study could potentially enhance women's understanding of painless labor, leading to greater satisfaction and informed decision-making. The Polish study by **Pietrzak et al. (2022)** underlines the impact of hospital resources on pain management options and women's satisfaction. While our study population consisted primarily of urban residents, future research could explore if satisfaction levels differ between urban and rural settings in Yemen, potentially due to variations in access to pain management techniques across different hospital levels. The other study by **Rahmati et al. (2024)** conducted in Iran investigated the effectiveness of single-dose spinal analgesia compared to epidural analgesia for labor pain management. Their findings provide valuable insights that complement our research on painless labor satisfaction.

The Iranian study found that single-dose spinal analgesia offered comparable pain relief to epidural analgesia during the first 90 minutes after administration. This aligns with our observation that the specific pain management technique might not be the sole determinant of overall satisfaction. However, unlike our study, the Iranian research did not report any significant differences in pain scores beyond 90 minutes. This suggests that the duration of pain relief might differ between single-dose spinal and epidural techniques, warranting further investigation.

5.2. Study limitations:

1. Lowest of local and regional studies on single-shot of spinal analgesia for painless labor in Yemen.
2. Mothers' concerns regarding painless labor and lack of awareness about its benefits.
3. Limited research samples and difficulty accessing them.
4. Low awareness among the pregnant Yemeni women about painless labor with Single-Shot of spinal analgesia and its advantages.
5. Challenges faced by the team in convincing hospitals and medical staff to adopt the technique due to its novelty in Yemen.
6. Low public and maternal trust in this technique due to its the first recent introduction in Yemen.
7. Lowest of the trained medical personnel to provide this technique.

CHAPTER SIX

Conclusion & Recommendation

6.1. CONCLUSION:

A study was conducted on women's satisfaction with painless labor using single-shot spinal analgesia in Sana'a, Yemen, where a total of 104 questionnaires were completed, with a response rate of 87.40%. The study revealed a high level of satisfaction among women regarding painless labor. It also found a significant relationship between satisfaction and variables such as the hospital's name and the number of previous deliveries. The results showed a high level of satisfaction among participating women, with an overall satisfaction rate of 87.40%. Additionally, 89.5% of the participants were urban residents. The average age of participants was 26 years, with a standard deviation of 0.91. The youngest participant was 20 years old, and the oldest was 40 years old. In terms of education, 64.4% of the women had completed secondary education, while 23% held university degrees.

The study concluded that single-shot spinal analgesia, using a combination of Heavy Marcaine 3–5 mg (0.5–1 ml), 25 mcg fentanyl, 20 mcg adrenaline, and 0.5 ml normal saline, provides effective labor pain control for Yemeni women. Maternal satisfaction with this technique was very high, and it was found to be a fast, safe, and easy procedure that can be performed by an anesthesiologist or anesthesia technician.

6.2. Recommendations:

1. Conduct more local and studies on the successful use of single-shot of spinal analgesia for painless labor in Yemen and compare it to neighboring countries.
2. Raise awareness among mothers about the benefits of painless labor with Single-Shot of spinal analgesia, address their concerns, and disseminate the success stories of previous mothers through obstetricians, midwives, and health centers.
3. Encourage the Ministry of Health to support hospitals and maternity and child care centers in providing painless labor by single-shot of spinal analgesia at affordable prices.
4. Encourage universities to provide adequate education on painless labor and collaborate with hospitals to facilitate access to research samples to enable researchers to conduct more comprehensive and accurate studies.
5. Raise public awareness about the importance of painless labor with Single-Shot of spinal analgesia and its benefits for both mothers and babies.
6. Encourage and train healthcare providers to offer painless labor using single-shot of spinal analgesia an option for mothers.
7. Organize awareness campaigns and provide educational programs for mothers on painless labor using single-shot of spinal analgesia, equipping them with the skills and knowledge to make informed decisions about their childbirth options.

8. Support research on developing new techniques to relieve labor pain while minimizing side effects.
9. Encourage collaboration between researchers and healthcare practitioners to ensure that all women have access to high-quality antenatal, delivery, and postpartum care, including effective pain relief options
10. Hold scientific seminars to discuss painless labor according to Single-shot of spinal analgesia.
11. Encourage students in the coming years to continue conducting research on painless labor in all its methods.

Appendixes



Questionnaire on

Evaluation of normal childbirth results without pain using an epidural in private hospitals in the capital: a descriptive cross –sectional study

Dear participants'

We are researchers from the medical training and qualification center at university 21. we continue to conduct a field study to fulfill the requirements for obtaining a diploma in anesthesia and intensive care specialization ,approved by university 21. The aim is to assess the results of normal childbirth with pain using an epidural in private hospitals in the capital. Please note that participation in this study is voluntary and all information obtained will be kept confidential .the results will be handled statistically according to scientific criteria and will only be used for research purposes .

We thank you for your time and willingness to answer the questions in this questionnaire .

Consent:

Do you agree to participate in this study?

Yes I agree to participate ()

No I don't wish to participate ()

Note: please check the appropriate box that reflects your decision

	First demographic data	
1	Name	
2	Phone number	
3	Hospital name	
4	Age	
5	Place of residence	Countryside () City ()
6	Education level	Unlettered () Secondary Education () Higher Education ()
7	Number of pregnancies and deliveries	
8	Previous birth	Natural birth () Cesarean birth () Delivery without pain ()
9	The type of anesthesia technique used	Epidural anesthesia single –shot ()
10	Note from the research team	

	Patient satisfaction with the experience of spinal injection	High unsatisfied	Unsatisfied	Neutral	Satisfied	High satisfied
1	How satisfied are you with the information provided by the anesthesiologist about the spinal injection before the procedure?					
2	How satisfied are you with the effectiveness of the spinal injection in relieving labor pain caused by contraction during the active phase of labor ?					
3	How satisfied are you with the effectiveness of the spinal injection in relieving pain during the pushing stage of labor and the baby's head ?					
4	How satisfied are you with the effectiveness of the spinal injection in relieving pain after childbirth?					
5	How satisfied are you with the support and care provided by the anesthesia team in handling you during childbirth?					
6	How satisfied are you with support and care provided by midwives and obstetricians in dealing with your pain and exhaustion during childbirth?					
7	How satisfied are you with support and care provided by midwives and obstetricians in dealing with your pain and exhaustion after childbirth?					

Number of attempts made until the success of the epidural injection

One attempt () two attempts () not sure () Duration of labor after receiving the epidural injection: one hour() two hour() there hour ()

Duration of pain relief after receiving the epidural injection ()

Specific to the research:

1-Natural birth ()

2-Assisted vaginal delivery ()

3-Using vacuum extraction ()

4-Caesarean section ()

Third : information about the results of pain relief techniques						
	information about the results of pain relief techniques to the degree of the pain	Options				
1	Phrase	No pain	mild	Moderate	Severe pain	Unbearable pain
2	The translation of the level of pain you felt before having a spinal injection					
3	The translation of the level of pain you felt after 30 minutes of receiving the spinal injection?					
4	The translation of the level of pain you felt after 90 minutes of receiving the spinal injection?					
5	The translation of the level of pain you felt after 150 minutes of receiving the spinal injection ?					

Information about the outcomes of pain relief techniques according to possible complication .			
1	The question	Options	
2	Have there been any complication or side effects from the following?	Yes	No
3	Nausea		
4	Dizziness		
5	Low blood pressure		
6	Headache		
7	Numbness in the legs		
8	Skin itching		
9	If you have not experienced any side effects?		
10	Any other comment		

PAIN SCALE



Specific for research for team

Information about the outcomes of pain relief techniques
(**APGAR SCORE**)

APGAR Score at the 1 minute of birth

APGAR Score at the 5minute of birth

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ملخص الدراسة:

تأثير:

تسكين مآل لمخاضا يه يقننق يتم فيها مآخذاست يزكتر عينم عيغالل نم ءالدوا مآخذتلمسا ءابر لظهر ليلقننق مآل.

فهدل:

نآك فالهدا نم مآه قراسلدا هو مآقبي اضلرا انآنتنو دةلاولآ يعيقبلطآ نبدو مآل عم هعرج قحداو نم تسكين مآلآ ودلعم يقرفلآ بين ساعنلآ تيانللمآ يف قيندم عآنص، ليمنا.

منهج:

تيرجأ ءدراس يقفوص ثرأب يعرج بين ساعنلآ على ديم قرتف ينماع نم (٢٦ رايبرف ٢٠٢٣ إلى ٢٨ ريسمدي ٢٠٢٤) يف ضريع تيفشتملسا يعموكحلآ يف قيندم عآنص، مت مآخذاست قةيلطرا لغيرا ئيقواشع فةدلهاا يتلآو تلمش عومجم ١٠٤ قرآم نم لآلا تانياستبلاا يقرقلا تانياستبلااو يقننوتلالآ. مآلكو ترياآ ليجنس اضلرا يتلآ مآخذاست يالآتك (يرغ يقراض)، (يرغ يقراض قيشد)، (قديآحم)، (يقراض)، (يقراض قيشد). مآك مت مآخذاست (SPSS V 28.0) ليلقننق يالآصلاآ تانيلبل. نآك عميج تالآختبلاا انيقصلاآ تذا ينهآآ عم لودلم $P \leq 0.05$

نآنتل:

تيرجأ ءدراس اضلرا على ارض ساعنلآ دةلاولآ نبدو مآل، ثآي عزو ١٢٢ انياستب موت ليم ١٠٤ انياستب هبسنب يةعآجراست ٨٦%. تفشك قراسلدا نع ىتوسم لآع نم اضلرا بين ساعنلآ فيما قل عيت دةلاولآ نبدو مآل، تدجوو قراسلدا اضيأ ءعلاق بين آتيارلاا ضوبع تاغيرتلمآ لثم (اسم ىفشتملسا ددعو تداولآ لسابقة). ٨٩,٥% نم تاركلمشا وانآك نم نكاس قطانلمآ قيرضحلآ، نآكو طنوسم رماعلا ٢٦ اماع عم افرحنا يرعيام ٠,٩١. دحلآ ىندلا لسن نآك ٢٠ اماع دحلآو قصىلآ عملل نآك ٤٠ اماع. نم ثآي ىتولمسآ ييملعتلآ نآك لى رثكأ نم فصن تاركلمشا يمالتع اوينثا قبسنب ٦٤,٤% هيل ميلعتلآ يعمآجل قبسنب ٢٣%. تدجوو قراسلدا تياآار الياع رثكأ نم ٨٧,٤٠% بين ساعنلآ يتلالآ نولد نبدو مآل مآخذستبا يقننق ءعرجلآ قحداو نم سكينتلآ يف ودلعم يقرفلآ، يماسلا فيما قل عيت تاملوبالمع يتلآ هامدق يالآخص ريآدتلآ، وفعالية فيفتخ مآلآ، عملداو يلذا منقيلت نم تاللقابا اعطبلاو. نآك ساعنلآ تياراض لبشك صاآ نع فعالية قنقحلآ قوف افيةجلآ يف فيفتخ مآلآ اءنثا ءلرحم علفا.

آآاتالاستنت صياتتولآو:

النصوت ىلآ نا قبرا سكينتلآ قوف افيةجلآ عم آيآم نم انينركلما ٣ _ ٥ لم مارج (٥,٠ _ ١٠ لم)، ٢٥ آكرويام مارج ليناننف، ٢٠ آكرويام مارج لينادرين و ٥,٠ لم لآلوم يلآم فروت مكآت لفعلا ملأل. نآكو رضى تهاملآ مبهذ يقننقنلآ فعرتم عيغالل. يمو يقننق عةيرس قنموا قلسو مكني نهارآج نم لقب يالآخص ريآدتلآ و اينف ريآدتلآ. ىصيوو مكآتبال يف مآل دةلاولآ ينلروتيا يف ليمنا، مآط يصون زاركو قصلآ شرنب يوعلا فقينثتلآو يصحلآ لوح مآه يقننقنلآ و اضاي فيروت طقنم عقمم يف مآليقتحآ شآو يآ تافعآمض و بوجت لآويت الةحلآ دةلاولآ قيرصيق.

اتكلملآ عيآمفتلآ:

اضلرا، انآنتلآ، دةلاولآ نبدو مآل، ءعرجلآ قحداو نم تسكين مآلآ يف ودلعم يقرفلآ، ساعنلآ تيانللمآ.

تقييم نتائج و رضا الولادة الطبيعية بدون ألم باستخدام ابره الظهر بين النساء في مدينة صنعاء

(دراسة وصفية بأثر رجعي)
بحث مقدم استكمالاً لمتطلبات درجة الدبلوم في التخدير والعناية المركزة

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مرسل عبدالقوي النجار

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