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Maternal Complications and Associated Factors among Mothers Related to the Type of Cesarean Section

A thesis

Submitted to the Council of College of Nursing/ University of Kerbala

in Partial Fulfillment of the Requirements for the Degree of Master in Nursing Sciences

Submitted by

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Dedication

To

To .....My dear mother

My role model in life, whose name I am proud

of

To..... my dear father and my

support in life

To my beloved brothers and sisters.....and my

friends with love and respect

Walaa

2024

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Finally ….

I pray to Allah (the Great and Almighty)

To bless them all.

Abstract

Background: Complications and factors associated with different types of cesarean sections (C/S) among mothers represent an important area of study in maternal health. Caesarean sections, whether elective or emergency, are common surgical procedures aimed at ensuring the safety of both mother and baby during birth. Therefore, the study aimed to evaluate complications and factors associated with different types of C/S among mothers .

Method: A cross-sectional descriptive study conducted at the Obstetrics and Gynecology Hospital in the city of Karbala for the period from December 15th, 2023 to March 19th, 2024. The sample of the study included 270 mothers who were selected according to the non-probability sampling method. The questionnaire was validated by experts and its reliability was verified through a pilot study. Data was collected through the interview method and analyzed by applying descriptive and inferential statistical analysis .

Results: The study results reveal several important associations regarding factors influencing the likelihood of elective cesarean delivery. Mothers under 20 years of age (P = .000), uneducated mothers (P = .000), those giving birth at term (P = .000), those with a history of previous C/S (P = .000), and non-adherence to prenatal care (P = .000), and women with pregnancy-related illnesses (P = .000) showed significantly higher propensities for elective cesarean section, with odds ratios ranging from approximately 2.5 to 25 .

Conclusions: The study identifies different factors associated with different types of C/S and postpartum complications, with maternal age less than 20 years, lack of education, post-term birth, previous caesarean sections, irregular antenatal care attendance, and pregnancy-related illnesses significantly increasing the likelihood elective C/S. Health care providers should consider these factors when making delivery decisions and prioritize comprehensive prenatal care and education programs for at-risk populations.

Lest of Contents

List of Tables

List of Appendices

List of Abbreviations and Simples

Item	Meaning
%	Percentage
<	Less than
>	More than
ANC	Antenatal Care
AVMs	Arterio-venous malformations
BMI	Body Mass Index
CD	cesarean delivery
CI	Confidence Interval
CS	Cesarean section
DVT	Deep vein thrombosis
ECS	Emergency Cesarean Section
ECS	Elective Cesarean Section
ERAS	Enhanced Recovery After Surgery
HIV	Human immunodeficiency virus
IV	intravenous
LARC	Long-acting reversible contraception
N.	Number
OASIS	obstetric anal sphincter injury
OBPI	obstetric brachial plexus injury
OR	odds ratio
PPH	Postpartum hemorrhage
RDS	Respiratory distress syndrome
SSI	Surgical Site Infection
UTI	Urinary tract infection
VBAC	Vaginal birth after cesarean
WHO	World Health Organization

Chapter One

Introduction

Chapter One

Introduction

1.1.Background

Cesarean section (C/S), is the method of delivery of the baby through making incisions in the mother's abdomen and uterus. During the past few decades, cesarean section makes the most common surgical delivery type that has increased in many parts of the world. The increasing prevalence of Cesarean section, however, has raised concerns about the potential complications and factors that affect the mother’s health (Jafarzadeh et al., 2019). Based on statistics from World Health Organization (WHO), the global CS frequency has almost doubled in a span of 20 years until 2015 where 21% of all deliveries were conducted by cesarean section (Eyi and Mollamahmutoglu, 2021).

On the other hand, one of the major problems that may arise together with Cesarean sections is a higher chance of infection. Surgical site infection can be at the incision site or in the uterus which can be a cause of postoperative morbidity. A study which is systematic review and meta-analysis suggests that women undergoing Cesarean sections (C/Ss) are more predisposed to infections as compared to those delivering vaginally, indicating the need to adopt a vigilant postoperative care in order to minimize the risk for infections (Sobhy et al., 2019).

Furthermore, the possibility of maternal hemorrhage is associated with C/Ss. The surgical character of the process is capable of causing excessive bleeding during and after the surgery which may require blood transfusion and other invasive techniques. The authors established that women who undergo the elective Cesarean sections have a considerably high rate of postnatal

hemorrhage as compared to those who deliver vaginally, which stresses out the need for careful decision making about whether the procedure is indispensable or not (Xu et al., 2018).

Multiple factors bring the raising Caesarean section rate, including maternal age, multiple pregnancies and medical indications such as fetal distress and mal-presentation. Another significant factor is that women ask for cesarean sections without good reasons (Dhakal-Rai et al., 2022). During the last decade, there is a disturbing trend of a rising number of Cesarean deliveries requested by women for no clear medical reasons, which underscores the necessity of informed decision-making and patient education to address this issue (O'donovan & O'donovan, 2018).

The maternal age is a determinant that directly affects the chance of a Caesarean birth. Females who are thirty five and older are considered to be advanced in age, and they are usually associated with complications in the pregnancy and delivery processes, including gestational diabetes and hypertensive disorders, thus, indicating the need for cesarean interventions (Martinelli et al., 2021).

The second important component is the maternal preference for abdominal deliveries without any medical necessity. Biased influence of society and culture, in addition to the desire to be safe and have safe delivery option, may push the mothers to decide for elective cesarean section. This phenomenon has, in turn, brought about a lot of debates within the medical community concerning the ethicality and rightness of carrying out C/Ss if there is no medical necessity for them (O'donovan & O'donovan, 2018).

Medical diagnoses, for example, placenta previa and cephalopelvic disproportion, are the established causes for performing cesarean sections. Partial or complete placenta couvage

over the cervix increases the risk of severe bleeding, requiring a cesarean section (Kumar, 2021). Meanwhile, cephalopelvic disproportion, a case where the baby's head is too big to pass through the mother's pelvis, mostly requires surgical intervention to be sure of safe delivery (Stern et al., 2018).

Along with this, a history of several previous cesarean sections is a significant factor that might cause repeat cesarean delivery. After cesarean section (C/S). Vaginal birth after cesarean (VBAC) is a viable option for many women, but the type of uterine incision in the previous cesarean and the reason for the initial cesarean should be taken into consideration before the decision is made (Cegolon et al., 2021).

1.2.Importance of the Study

Increasing C/S rates have been the manifestation of the global issue, which attract the interest of the world's health professionals, researcher and policy makers. The Lancet journal publication in 2022 shows C/Ss numbers have increased gradually over the past few decades. In 2015 the global average was 21.1%, compared to 6.7% in 1990 (Nderitu, 2022; Angolile et al., 2023). This increase is the cause of the problem of overuse of C/Ss, which is not recommended by the World Health Organization (WHO) if the rates above 10-15 percent are not associated with significant decrease in the deaths of the mother and newborns (Yaya et al., 2018).

For the last decades, cesarean sections have demonstrated a particularly staggering trend in both developed and developing world. The WHO, in its 2008 study, put the number of the CS done per year at 18.5 million with 69 countries having a rate above 15%. Annually, 6.2 million needless CS are done at a total cost of 2.32 billion US dollars. As the overuse results in augmented costs for

public-sector services, it is discouraged (Zgheib et al., 2017). The number of cesarean deliveries without a medical need is increasing without an investigation of the risk of surgical complications (Majeed et al., 2018).

Some of the factors that appear to be driving the rise in the C/S rates include: particular reason is the rise in medicalization of childbearing due to the tendency for interventions to support labor. The medical conditions that determine the need for C/Ss, maternal age, multiple pregnancies, and existing health conditions, may increase the probability of C/Ss. Before, it was noted that advanced maternal age, and particularly high risks, were associated with C/S deliveries due to aging-related factors such as (Mann & Berkowitz, 2023).

Socioeconomic status is not the issue that can be missed away while discussing the increasing C/S rates. Research have shown that women who are educated and women from higher income backgrounds are more likely to have cesarean sections than other women. This may be for the reason of the facilities of the schedule and the misconception of C/Ss more safe and less painful than the natural birth. It emphasizes the need for dealing with these social determinants to ensure the effectiveness of strategies that would reduce medically unnecessary C/Ss (Nderitu, 2022).

The healthcare system factors also contribute to the trend of the C/S rates to be more than usual. In certain areas, where there is not enough well-trained practicing staff and appropriate facilities for the birth process, this can lead to the increased use of C/S. As emphasized in the study, such policies should encourage healthcare practices which are evidence-based, and measures that would promote the development of healthcare infrastructure and training

as a means of reducing the number of unwarranted C/Ss (Baker et al., 2022).

In this case the major complication is a chance of infection that increases as a result of Cesarean section delivery. The incision area can get an infection that causes discomfort, takes longer to recover, and in severe cases can lead to general infections. Factors like long labor, ruptured membranes, and obesity are well known to increase the risk of infection after a C/S (Mascarello et al., 2017).

The risk factor which should not be overlooked is the chance of maternal hemorrhage that can occur during or after the operation. Excessive bleeding could be attributed to many factors, such as an improperly placed uterine suture, placental abnormalities or blood clotting disorders. Prompt identification and handling of those factors represent a must be condition for pregnancy complications to be prevented from becoming a serious threat to the health of the mother (Beilin, 2018).

Along with the body, the C/Ss also may influence the mental and emotional health of the mothers. Postoperative pain, delayed bonding between mother and child and a sense of disappointment or a failure in the process of birth can create postpartum emotional distress. Support and counseling are the necessary things for handling these emotional parts of C/S births (Grisbrook et al., 2022).

To mitigate these complications, thorough preoperative assessment, as well as adequate prenatal care and adherence to scientifically proven guidelines for C/Ss are done. The healthcare providers need to be properly trained, there should be close monitoring of the mother during and after the operation and the mother should be well informed about the reasons for the procedure

all can contribute to reducing the complications and increasing the positive outcome of the mother and her baby (Smith, 2017).

While Cesarean sections are lifesaving procedures, it is vital for the healthcare providers to be aware of the complexities and associated factors pertaining to it to make informed choices and provide proper care. Through risk factors addressing, improvements in surgery techniques and providing complete support to the mothers, the healthcare system can gradually decrease the probability of different complications which could be observed after C/S deliveries (Coates et al., 2020).

1.3.Statement of the Problem

Cesarean sections (C/S) are fast gaining popularity as a prevalent mode of delivery worldwide, their rates increasing over the course of time. Despite the fact that this surgical intervention is a life-saving procedure in some cases, it is not without its dangers. The conditions that can develop after cesarean section among mothers vary from infection, bleeding to prolonged recovery (Nderitu, 2022).

The other issue is the steeply increase in unnecessary cesarean section which is related to socioeconomic factors, cultural preferences, and healthcare system problems (Sehar et al. 2023). Several investigations have revealed the bond between maternal age and the likelihood of a cesarean section, where advanced maternal age is the main contributor to the increased likelihood of opting for a cesarean section (Casteleiro et al., 2019).

And while regional differences and different section rate variations are quite interesting, they also pose a question. Diversity of delivery systems and cultural practices is the main reason for a different cesarean delivery rates in different geographical areas.

Besides, the impact on maternal health outcomes is tremendous (Hernández-Vásquez et al., 2020).

1.4.Objectives of the Study

The study objectives include the following :

1. To identify the complications and associated factors related to the caesarean sections among mothers.
2. To investigate the differences associated factors related to the caesarean sections among mothers with regards socio-demographic characteristics.
3. To determine the association between complications and associated factors related to the caesarean sections among mothers.

1.5.Research Questions

What are the primary complications associated with cesarean sections among mothers? And how do these complications vary across different demographic factors?

1.6.Definitions of Terms

1.6.1.Complications

Theoretical Definitions

It's considered the events or conditions which occur during or after a health situation that are unplanned and challenging (Birgin et al., 2019).

Operational Definitions

Complications that are associated with and occurring during or after a cesarean section, which in turn may reduce the level of health and wellness of the mother.

1.6.2. Caesarean Section

Theoretical Definitions

The surgical process where the baby is delivered through an incision made in both the mother's abdominal and uterine walls (May et al., 2022).

Operational Definitions

A surgical procedure (i.e. a cesarean section) is usually recommended when the mother or the baby is at risk and a vaginal delivery is not possible.

1.6.3. Associated Factors

Theoretical Definitions

It's a factors or predictors of the presence of a health condition? (Lau et al., 2021).

Operational Definitions

There are many factors that may cause the choice of cesarean delivery that is include socio-demographics, date of delivery, factors that associated with C/S maternal, fetal, or environmental conditions that favor the procedure.

1.6.4. Mothers

Theoretical Definitions

This is a term used for pregnant women as well as women who have given birth (Garcia, 2016).

Operational Definitions

This group includes women undergoing a cesarean delivery at Obstetrics and Gynecology Teaching Hospital in Kerbala.

Chapter Two

Literature Review

Chapter Two

Literature Review

2.1. History of Cesarean Section:

Cesarean section is a obstetric procedure known since ancient times. It is mentioned in almost all ancient cultures. While until the 17th century it was performed mainly post mortem to retrieve an infant from the body of the deceased mother, today there are many indications for termination of pregnancy in this way. Literature provides references to earlier attempts to save the mother, but this happened only sporadically. The first record for both mother and child survived dates back to 1500. The development of science and medicine contributed to the dissemination and improvement of the methods used to extract a child by caesarean section. It was influenced by the development of operational, anesthetic and aseptic techniques (Zwierzyńska et al., 2022).

Cesarean section (CS) is one of the oldest surgical operations. Originally, this surgery was performed post-mortem by cutting open the woman's abdomen to remove a dead or alive fetus. It was therefore not intended for saving the mother in ancient times. Roman law and religious rituals shaped the procedure until the Middle Ages. At that time, the indication of CS was only post-mortem (Dhakal-Rai et al., 2021).

Although a CS became a medical procedure in the Renaissance, maternal mortality was extremely high, mainly due to hemorrhage and puerperal infection. The reason for performing CS was to rescue the mother and fetus from protracted labor as a last resort. Since the late 19th century, with the introduction of chloroform and the developments of surgical techniques, and the availability of blood transfusion in the early twentieth century, CS became a relatively safe procedure, further helped by the

introduction of antibiotics after World War II. Then, CS was increasingly an intervention to preserve the health and safety of both mother and fetus. During the 21st century, CS has been performed even without medical indication, such as maternal choice (Stjernholm, 2018). Advancement of obstetric practice technologically and professionally during the period as well as changing attitudes of both obstetricians and childbearing women meant indications for CS are no longer limited to medical/obstetric indications. CS is perceived as a safer mode of childbirth. Therefore, the indications of CS have been changed drastically from ancient times (rescuing a baby from dying or dead mother) to the 21st century (maternal choice/reproductive rights) (Azimirad, 2020).

Cesarean section (CS), avoided for its alarming mortality rate over a little more than a century ago, is now the mode of delivery for one in three women in the United States (Hamilton et al., 2019), and up to four in five women in some other places in the world. Its long recorded history reflects evolving surgical opinion through the ages addressing bleeding, infection, pain, sutures and, most recently, hospitalization time and cost savings (Nakamura-Pereira et al., 2016).

Throughout human history, the childbearing years have represented a time of increased risk of mortality for women with a significant portion of that risk associated with childbirth. Pregnancy and birth are times in the human life cycle when natural selection operates intensely on the biology of both the mother and her infant. Cultural adaptations to these risks take the form of attendants of many sorts, including untrained friends and relatives, experienced midwives and obstetricians, all of whom provide a range of services from emotional support to surgical delivery (Rosenberg, 2018).

2.2. Indications of Cesarean Section:

The main indications for cesarean delivery are previous cesarean delivery, breech presentation and fetal distress. Although CS is a safe operation, when it is performed without medical need it puts mothers and their babies at risk of short- and long-term health problems. Most complications of CS, however, come from the cause which leads to CS. Factors that make some women more likely to have complications include: obesity, large infant size, prolonged labor, multiple pregnancy, and premature labor. In the absence of a clear medical indications, the excess risk associated with the operation itself must be considered. Short- and long-term maternal and infant problems associated with elective caesarean section are higher than those associated with vaginal birth (Batieha et al., 2017).

There are many indications for performed the CS, there are various reasons that lead to make a CS for a berth why a fetus cant, or should not, be delivered vaginally. Some of these indications are inflexible, as a vaginal birth would be dangerous in certain clinical scenarios. For example, a cesarean delivery is often the recommended approach if the patient has had a prior classical cesarean scar or previous uterine rupture. However, due to the potential complications of cesarean delivery, much study has been done looking for ways to reduce the cesarean rate (Boyle et al., 2014).

This indications can be categorized to (maternal, uterine/anatomic and fetal indications for cesarean), and can be divided to:

2.2.1. Maternal Indications for Cesarean:

Maternal indications for cesarean delivery include the following: (Mascarello et al., 2017)

- Prior cesarean delivery
- Maternal request
- Pelvic deformity or cephalopelvic disproportion
- Previous perineal trauma
- Prior pelvic or anal/rectal reconstructive surgery
- Herpes simplex or human immunodeficiency virus (HIV) infection
- Cardiac or pulmonary disease
- Cerebral aneurysm or arterio-venous malformation
- Pathology requiring concurrent intra-abdominal surgery
- Perimortem cesarean

Relative maternal indications include conditions in which the increasing intra-thoracic pressure generated by Valsalva maneuvers could lead to maternal complications. These include left heart valvular stenosis, dilated aortic valve root, certain cerebral arterio-venous malformations (AVMs), and recent retinal detachment. Women who have previously undergone vaginal or perineal reparative surgery (eg, colporrhaphy or repair of major anal involvement from inflammatory bowel disease) also benefit from cesarean delivery to avoid damage to the previous surgical repair (De Morais Filho & De Morais, 2022).

Dystocia in labor (labor dystocia) is a very commonly cited indication for cesarean delivery, but it is not specific. Dystocia is classified as a protraction disorder or as an arrest disorder. These can be primary or secondary disorders. Most dystocias are caused

by abnormalities of the power (uterine contractions), the passage (maternal pelvis), or the passenger (the fetus) (Neal et al., 2015).

2.2.2. Uterine/Anatomic Indications for Cesarean:

This can including: (Sung & Mahdy, 2023)

- Abnormal placentation (such as placenta previa, placenta accreta)
- Placental abruption
- Prior classical hysterotomy
- Prior full-thickness myomectomy
- History of uterine incision dehiscence
- Invasive cervical cancer
- Prior trachelectomy
- Genital tract obstructive mass
- Permanent cerclage

2.2.3. Fetal Indications for Cesarean:

Fetal indications for cesarean delivery include the following: (Simpson, 2012)

- Nonreassuring fetal status (such as abnormal umbilical cord Doppler study) or abnormal fetal heart tracing
- Umbilical cord prolapse
- Failed operative vaginal delivery
- Malpresentation
- Macrosomia
- Congenital anomaly

- Thrombocytopenia
- Prior neonatal birth trauma

A fetus in a nonvertex presentation is at increased risk for trauma, cord prolapse, and head entrapment. Malpresentation includes preterm breech presentations and non-frank breech term fetuses. The decision to proceed with a cesarean delivery for the term frank breech singleton fetus has been challenged. Some state maternal care collaborative agencies are even implementing tools to decrease the likelihoond of cesarean section in the instance of a breech presentation, with guidelines recommending the formation of a team in the hospital that is trained and confortable with breach and operative deliveries (Stewart, 2017).

2.2.4 Maternal and fetal indications:

Indications for cesarean delivery that benefit both the mother and the fetus include the following(abnormal placentation, abnormal labor due to cephalo-pelvic disproportion and situations in which labor is contraindicated) (Arulkumaran, 2012). In the presence of a placenta previa (ie, the placenta covering the internal cervical os), attempting vaginal delivery places both the mother and the fetus at risk for hemorrhagic complications. This complication has actually increased as a result of the increased incidence of repeat cesarean deliveries, which is a risk factor for placenta previa and placenta accreta. Both placenta previa and placenta accreta carry increased morbidity related to hemorrhage and need for hysterectomy (Severi et al., 2017).

2.3. Contraindications:

There are no true medical contraindications to the cesarean section. A cesarean is an option if the pregnant patient is dead or dying or if the fetus is dead or dying. While there are ideal

conditions for cesarean, such as the availability of anesthesia and antibiotics, and appropriate equipment, the absence of these is not a contraindication if the clinical scenario dictates. Ethically, a cesarean is contraindicated if the pregnant patient refuses. Adequate education and counseling are crucial for informed consent. However, if the pregnant patient does not consent to have surgery performed upon her body, ultimately, it is her right as an autonomous patient (Camal et al., 2016).

There are some clinical scenarios in which a cesarean delivery may not be the preferred option. One could consider these relative contraindications. For example, a pregnant patient may have severe coagulopathy, which makes surgery extremely dangerous. In that case, vaginal delivery may be preferable. Alternatively, a patient with an extensive history of abdominal surgery may also be a poor surgical candidate. In the event of fetal demise, performing a cesarean exposes the pregnant patient to the risks of cesarean without any fetal benefit. The same considerations apply if the fetus has severe anomalies that are incompatible with life (Goyal et al., 2021).

A cesarean delivery may not be recommended if the fetus has a known karyotypic abnormality or known congenital anomaly that may lead to death (anencephaly). However, the physician and the patient must actively discuss all the options prior to making that decision. A pregnant patient may have severe coagulopathy, which makes surgery extremely dangerous. In that case, vaginal delivery may be preferable. Alternatively, a patient with an extensive history of abdominal surgery may also be a poor surgical candidate (Case et al., 2012).

There are few contraindications to performing a cesarean delivery. If the fetus is alive and of viable gestational age, then

cesarean delivery can be performed in the appropriate setting. In some instances, a cesarean delivery should be avoided. Rarely, maternal status may be compromised (eg, with severe pulmonary disease) to such an extent that an operation may jeopardize maternal survival. In such difficult situations, a care plan outlining when and if to intervene should be made with the family in the setting of a multidisciplinary meeting (D'Souza & Arulkumaran, 2013).

2.4. Types of Cesarean Section:

2.4.1. Emergency Cesarean Section

Emergency Cesarean Section (ECS) is a surgical procedure performed to deliver a baby when there are unforeseen complications during labor and delivery that pose a threat to the health of the mother or the baby. This intervention becomes necessary when there is an urgent need to expedite delivery to prevent potential harm. Common indications for an emergency cesarean section include fetal distress, placental abruption, cord prolapse, and uterine rupture (Ayano & Guto, 2018).

One of the primary indications for an emergency cesarean section is fetal distress, where the fetus is not receiving adequate oxygen or nutrients during labor. This can be detected through electronic fetal monitoring, which monitors the baby's heart rate and can signal signs of distress (Singh et al., 2020). Placental abruption, another critical indication, occurs when the placenta prematurely separates from the uterine wall, leading to potential life-threatening bleeding for both the mother and the baby (Nair et al., 2019).

Cord prolapse, a less common but severe complication, happens when the umbilical cord slips through the cervix ahead of the baby, potentially cutting off the baby's oxygen supply. Uterine rupture is a rare but serious complication where the uterus tears,

often in women with a previous cesarean section scar, leading to the need for immediate surgery to protect the mother and the baby (Guan et al., 2020).

Timing is crucial in an emergency cesarean section, as delays can increase the risks for both the mother and the baby. The decision to perform an ECS is often made swiftly, considering the urgency of the situation and the potential complications that may arise if delivery is not expedited. A multidisciplinary approach involving obstetricians, anesthesiologists, neonatologists, and other healthcare professionals is crucial to ensure the best possible outcomes for both the mother and the newborn (Betran et al., 2018).

Incidence rates of emergency cesarean sections can vary widely across regions and healthcare systems. Numerous factors contribute to the likelihood of an emergency cesarean, including maternal age, pre-existing health conditions, pregnancy complications, and hospital practices (Yang & Sun, 2017).

One of the challenges in studying incidence rates is the dynamic nature of obstetric care, evolving medical guidelines, and the subjective nature of decision-making during labor. Some studies suggest that there has been an increase in the overall cesarean section rates in several countries over the years, including emergency cesareans, though there is significant variation (Singh et al., 2020).

A study by Buhari (2020), examined trends in cesarean section rates in the United States. The researchers reported an overall cesarean delivery rate of 31.9%, with 14.6% being classified as emergency procedures. The study highlighted the importance of understanding the factors contributing to cesarean deliveries and the potential impact on maternal and neonatal outcomes.

2.4.2. Elective Cesarean Section

Elective Cesarean Section (ECS), also known as planned or scheduled cesarean section, is a surgical procedure in which a baby is delivered through an incision made in the mother's abdomen and uterus. This method is chosen in advance, usually before the onset of labor, for various medical or personal reasons (Vigdis Rikhardsdottir et al., 2021). While the World Health Organization (WHO) suggests that the optimal rate for cesarean sections is around 10-15% of all births, elective cesarean sections have become more common in some regions, raising debates about the appropriateness and potential risks associated with the procedure (Boerma et al., 2018).

Medical indications for elective cesarean section may include conditions such as placenta previa, where the placenta partially or completely covers the cervix, or breech presentation, where the baby's buttocks or feet are positioned to be delivered first. Maternal medical conditions like certain infections, such as HIV or herpes, may also warrant an elective cesarean section to reduce the risk of vertical transmission to the baby. In addition, a history of previous cesarean section may influence a woman's decision to opt for ECS due to concerns about uterine rupture during a trial of labor (Jain et al., 2020).

On the other hand, there has been a rise in elective cesarean sections driven by non-medical factors, including maternal request and concerns about the perceived convenience of scheduled delivery. Some women opt for ECS to avoid the uncertainties and potential pain associated with labor, or for personal reasons such as fear of vaginal birth or concerns about pelvic floor disorders. Ethical considerations surround the decision-making process, and healthcare providers often engage in discussions with pregnant

women to ensure that the choice aligns with both medical evidence and the woman's preferences (O'donovan & O'donovan, 2018).

It's important to note that while elective cesarean sections are generally considered safe, they are not without risks. Surgical complications such as infection, bleeding, and injury to nearby organs can occur. Moreover, babies born via elective cesarean section may be at a slightly higher risk of respiratory difficulties compared to those born vaginally, as the process of labor helps to clear fluid from the baby's lungs. Long-term effects on maternal and child health are subjects of ongoing research, and healthcare providers carefully weigh the risks and benefits when considering this option (Sandall et al., 2018).

2.5. Reasons for choosing elective cesarean sections

Elective C/Ss refer to the surgical delivery of a baby through an incision in the mother's abdomen and uterus, typically scheduled in advance rather than being performed as an emergency procedure (Diema et al., 2019). Several trends and reasons contribute to the choice of elective C/Ss, and they can vary based on medical, personal, and cultural factors.

1. Maternal Request and Choice:

Elective C/Ss are sometimes performed at the maternal request. Women may express a preference for C/Ss due to fear of the unknown or anxiety associated with the unpredictability of natural childbirth. This choice is often influenced by cultural perceptions, personal experiences, and concerns about pain associated with labor (Brown & Mulligan, 2023).

2. Perceived Convenience and Control:

Some women opt for elective C/Ss for reasons related to scheduling and control. Planning the birth allows for better coordination with the healthcare provider's schedule and may be

perceived as a more convenient option, especially for women with demanding careers or other responsibilities (Gombolay et al., 2019).

3. Previous Traumatic Birth Experience:

Women who have had a traumatic experience during a previous childbirth, whether due to complications or emotional distress, may opt for elective C/Ss in subsequent pregnancies to avoid a recurrence of negative experiences (Eide et al., 2019).

4. Fear of Vaginal Birth and Complications:

Tokophobia, an intense fear of childbirth, can lead some women to choose elective C/Ss as a way to avoid the potential complications and perceived risks associated with vaginal birth. This fear may be rooted in concerns about pain, injury, or psychological trauma (Khalesi, 2022).

5. Medical Indications and Maternal Health Issues:

In some cases, elective C/Ss are recommended for medical reasons. Maternal health issues such as placenta previa, certain heart conditions, or infections may make a surgical delivery safer for both the mother and the baby (Canelón & Boland, 2020).

6. Breech Presentation and Fetal Factors:

When a baby is in a breech position (feet or buttocks first), some healthcare providers recommend a C/S to reduce the risks associated with a vaginal breech birth. Fetal factors such as abnormal positioning or size may also influence the decision for an elective C/S (Petrovska et al., 2017).

7. Multiple Pregnancies (Twins, Triplets):

Women carrying multiple fetuses may be more likely to undergo elective C/Ss due to the increased complexity and potential complications associated with delivering multiple babies vaginally (Anbukkarasi, 2020).

2.6. Techniques Cesarean Section:

The cesarean section is a complicated procedure. Appropriate tissue handling, adequate hemostasis, avoiding tissue ischemia, and preventing infection are essential for wound healing and reducing subsequent adhesion formation. During the surgery itself, several techniques are utilizable at each step or tissue layer. This including:

- Pfannenstiel-Kerr method (Laparotomy via midline infraumbilical, vertical, or transverse)
- Joel-Cohen method
- Misgav-Ladach method
- Modified Misgav-Ladach method

A Pfannenstiel skin incision is slightly curved and is located 2 to 3 centimeters or 2 fingerbreadths above the symphysis pubis. The midportion of the incision is within the hair-bearing area of the mons. The hair should be removed in this case. A Joel-Cohen incision, in contrast, is straight rather than curved. It is 3 cm below the line connecting the anterior superior iliac spines, making it more cephalad than a Pfannenstiel skin incision (Dahlke et al., 2013).

The general operative methods are include: (Patel et al., 2017)

2.6.1. Pfannenstiel-Kerr Method:

- Pfannenstiel skin incision
- Sharp dissection of the subcutaneous layer
- Sharp extension of the fascial opening
- Sharp entry into the peritoneum
- Sharp superficial then blunt entry into the uterus

- Manual removal of the placenta
- Single-layer interrupted closure of the uterus
- Closure of the peritoneum
- Interrupted closure of the fascia
- Continuous suture of the skin

2.6.2. Joel-Cohen Method:

- Joel-Cohen skin incision
- Blunt dissection of the subcutaneous layer
- Blunt extension of the fascial opening
- Blunt entry into the peritoneum
- Sharp superficial then blunt entry into the uterus
- Spontaneous removal of the placenta
- Single-layer interrupted closure of the uterus
- Non-closure of the peritoneum
- Interrupted closure of the fascia
- Continuous suture of the skin

2.6.3. Misgav-Ladach Method:

- Joel-Cohen skin incision
- Blunt dissection of the subcutaneous layer
- Blunt extension of the fascial opening
- Blunt entry into the peritoneum
- Sharp superficial then blunt entry into the uterus

- Manual removal of the placenta
- Single-layer running closure of the uterus
- Non-closure of the peritoneum
- Continuous closure of the fascia
- Mattress suture closure of the skin

2.6.4. Modified Misgav-Ladach Method:

- Pfannenstiel skin incision
- Blunt dissection of the subcutaneous layer
- Blunt extension of the fascial opening
- Blunt entry into the peritoneum
- Sharp superficial then blunt entry into the uterus
- Spontaneous removal of the placenta
- Single-layer running closure of the uterus
- Closure of the peritoneum
- Continuous closure of the fascia
- Continuous suture of the skin

2.7. Complications of cesarean section:

There are many complications associated with CS; the common complications are categorized to early and late complications; the early complication that including hemorrhage, anesthesia-related complication, infection (prophylactic antibiotic given), occasionally there is injury to bowel, bladder, ureters or the fetus, thromboembolism is rare but could be fatal, aspiration of

gastric contents leads to Mendelson's syndrome and post-operative lung atelectasis (Mascarello et al., 2017).

The late complications including wound infection, secondary hemorrhage are not that uncommon, vesico- or ureterovaginal fistulae due to visceral injury are extremely rare and placenta accrete, also may be deep vein thrombosis (DVT) (Carbonnel et al., 2021). Three key complications of cesarean birth are postpartum hemorrhage, surgical site infection, and venous thromboembolism. DVT and pulmonary embolism PE during pregnancy (Burke & Allen, 2020).

This complications can be categorize to the following: (Reversible, 2016)

- Approximately 2-fold increase in maternal mortality and morbidity with cesarean delivery relative to a vaginal delivery: Partly related to the procedure itself, and partly related to conditions that may have led to needing to perform a cesarean delivery
- Infection (eg, postpartum endomyometritis, fascial dehiscence, wound, urinary tract)
- Thromboembolic disease (eg, deep venous thrombosis (DVT), septic pelvic thrombophlebitis)
- Anesthetic complications
- Surgical injury (eg, uterine lacerations; bladder, bowel, ureteral injuries)
- Uterine atony
- Delayed return of bowel function

2.7.1 Maternal Complications:

Cesarean section (C/S) is a surgical procedure in which a baby is delivered through an incision in the mother's abdomen and

uterus. While C/Ss are often performed for medical reasons and can be life-saving in certain situations, they are associated with various maternal complications. It's important to note that the risks and complications may vary depending on individual circumstances, and decisions about the mode of delivery should be made in consultation with healthcare professionals (Mascarello et al., 2017).

One significant complication associated with C/Ss is an increased risk of infection. The incision made during the surgery provides a potential entry point for bacteria, increasing the likelihood of postoperative infections such as endometritis (inflammation of the lining of the uterus) or wound infections (Zejnullahu et al., 2019). A study conducted by Memon et al. (2023), found that the overall infection rate after C/S was higher compared to vaginal deliveries, emphasizing the importance of proper surgical techniques and postoperative care to minimize this risk.

Another notable concern is the risk of blood loss and hemorrhage during and after a C/S. The surgical procedure involves cutting blood vessels, and excessive bleeding can occur, leading to complications such as anemia or, in severe cases, the need for blood transfusions (Karanth & Abas, 2021). A review published by Ahmeidat et al. (2021), highlighted that hemorrhage is a leading cause of maternal mortality associated with C/Ss, underscoring the need for vigilant monitoring and quick intervention to manage bleeding complications.

Furthermore, C/Ss have been linked to an increased risk of thromboembolism, which involves the formation of blood clots that can travel to the lungs or other parts of the body. Surgery indicated that women undergoing C/Ss have a higher risk of venous

thromboembolism compared to those with vaginal deliveries, emphasizing the importance of prophylactic measures, such as anticoagulant therapy and early mobilization, to reduce this risk (Bayan, 2022).

Beyond the immediate postoperative period, C/Ss may also have implications for future pregnancies. Research by Qureshi et al. (2023), suggested that women who have had a previous C/S are at an increased risk of placenta accreta, a condition where the placenta attaches too deeply into the uterine wall. This can lead to complications such as excessive bleeding during subsequent pregnancies and may necessitate additional interventions, such as hysterectomy.

2.7.2 Fetal Complication:

While C/Ss can be life-saving interventions, they are not without risks, and fetal complications may arise as a result of the surgery. It's important to note that the prevalence and severity of these complications can vary, and decisions about the mode of delivery should be made on a case-by-case basis, taking into consideration the specific circumstances of each pregnancy (Yang & Sun, 2017).

One potential fetal complication of C/Ss is respiratory distress syndrome (RDS). Babies born via C/S may be at a higher risk of developing RDS compared to those born vaginally. This is thought to be due, in part, to the lack of exposure to the stress of labor, which triggers the production of surfactant—a substance that helps the baby's lungs expand and function properly (Rahmawati et al., 2020). A study by Rahmawati et al. (2019), found an increased risk of RDS in infants born by elective C/S before 39 weeks of gestation.

In addition to respiratory issues, neonatal transient tachypnea, a condition characterized by rapid breathing and increased respiratory rate, has also been associated with C/Ss. The lack of the squeezing effect during passage through the birth canal may result in retained lung fluid, contributing to this transient respiratory distress (Zisovska et al., 2019). A study by Alhassen et al. (2021), suggested an increased risk of transient tachypnea in infants delivered by C/S.

Furthermore, C/Ss may increase the likelihood of neonatal hypoglycemia. Babies born by C/S may experience a delayed initiation of breastfeeding, which can impact their early nutritional intake and blood sugar levels (Chen et al., 2022). A study by Turner et al. (2019), discussed the association between C/S delivery and an increased risk of neonatal hypoglycemia.

Another concern is the potential for iatrogenic prematurity, where the decision to perform a C/S before the completion of 39 weeks of gestation may inadvertently lead to preterm birth. Preterm infants are at an increased risk of various complications, including respiratory distress, infections, and long-term developmental issues (Marrs et al., 2019). The study by Sotiriadis et al. (2019), emphasizes the importance of avoiding elective deliveries before 39 weeks to reduce the risk of prematurity.

2.7.3. Complications of Anesthesia:

Obstetric anesthetists need to face with the unique situation of providing anesthesia for caesarean sections, where they have to provide care for both the mother and the unborn baby. This including the high spinal, failed intubation, failed regional anesthesia, spinal headache ,chemical meningitis, epidural hematoma and extradural abscess (Patil & Upadhye, 2018).

2.7.4. Puerperal complications:

Puerperium also known as 'fourth trimester', is the six week time post-delivery; a time of rapid transition with gross changes related to her physical, mental and social health. Most of the females pass through this phase smoothly where as some of them can encounter with some complications like post-partum haemorrhage, puerperal sepsis, urinary problems, breastfeeding difficulties, sleep problems, mood swings, and disturbed intimate relationships (Sharma & Mahajan, 2023).

The women feel unprepared for the emotional, biological, and social changes that occur postpartum and less than half of women report receiving adequate information regarding postpartum depression, nutrition, physical activity and weight loss, or changes in sexuality and emotional response. By listening to and anticipating women's needs, the patient-provider relationship is strengthened, increasing the likelihood of postpartum follow-up. This commitment to patient-centered care should improve both maternal health outcomes and maternal and infant wellbeing throughout the life course (Spelke & Erika, 2018).

A common postpartum problems including information on urinary incontinence, sleep changes, emotional response and sexuality, expected weight loss. As women are often uncomfortable broaching these topics themselves, providers should ask about common symptoms specifically during both postpartum and primary care visits during the first year (Panah et al., 2023).

2.7.4.1. Infection:

Infections occur when bacteria enter the wound. Staphylococcus aureus, or staph bacteria, are the most common cause of post-cesarean wound infections, causing an estimated 15-

20 % trusted source of cases. Staph bacteria naturally live on people's hair and skin. When they multiply and enter a wound, they can cause several types of infection (Zejnullahu et al., 2019). Staph can cause the following types of post-cesarean wound infection: (Devi & Durga, 2018).

Impetigo: causes shallow, fluid-filled blisters that rupture and leave behind honey-colored crusts. It can be very painful and itchy.

Abscesses: Abscesses are sores filled with dead skin and pus that develop under the skin. They may feel warm and painful.

Cellulitis: Cellulitis is an infection of the skin and tissues just below it. The symptoms can quickly spread from the incision site outward and is typically painful, red, and warm to the touch.

Wound infections usually arise after 4–7 days. When the symptoms begin within 28 hours, Streptococcus, or strep, bacteria may be the cause. Strep infections can cause erysipelas. This is a type of cellulitis that also involves the lymph system. Women with erysipelas typically have red, shiny, raised lesions with clear margins. Other bacteria that can cause infections in cesarean wounds include (ureaplasma urealyticum, staphylococcus epidermidis, enterococcus faecalis, escherichia coli and proteus mirabilis) (Spelman & Baddour, 2023).

A person may mistake a wound infection for other complications that can affect the wound after a cesarean delivery. These include hematomas, or pockets of blood, that can form around the wound seromas, or pockets of fluid, that can form

around the wound wound dehiscence, which occurs when tissues in the wound separate along the incision line (Gelaw et al., 2017).

2.7.4.2. Sepsis:

Sepsis is an extreme immune system reaction to an infection somewhere in the body, leading to widespread swelling and inflammation. It can cause blood-poisoning, multiple organ failure as the blood pressure drops, and death (Fife 2017).

In pregnancy, infection has an impact on neonatal outcomes, preterm birth due to intrauterine infection, and neonatal sepsis. At the same time, infection also has an impact on maternal prognosis. Recently, the rate of maternal death related to sepsis has increased in the United States. Maternal sepsis deaths is associated with group A streptococcal bacteria, which is known to be causing an increasing number of deaths worldwide, is also the cause of approximately half of maternal sepsis deaths (Tanaka et al., 2019).

A caesarean section is a major abdominal operation and, as such, offers an opportunity for bacteria to enter the body. The abdominal wall and uterus are cut under general anaesthetic in order to allow the baby to be delivered. The longer the wound remains open, the greater the chances that bacteria will enter the body and cause an infection. An unplanned, emergency caesarean section is more likely to lead to infection than a planned pre-labor C/S (Krieger et al., 2017). medical practitioners should be alert to the following typical sepsis signs (fever, fast heartbeat, rapid breathing, diarrhea, vomiting, abdominal pain and signs of infection in caesarean wounds) (Hayes, 2018).

2.8. Intra-operative Complications:

Intraoperative complications can be classified to the flowing: (Gayathry et al., 2017)

- Hemorrhage
- Postpartum hemorrhage (PPH)
- Complication from anesthesia
- Transfusion reactions
- Bladder injury
- Hysterectomy
- Maternal death

2.9. Post-operative Complications:

Intraoperative complications can be classified to the flowing: (Gayathry et al., 2017)

- Anemia
- Post-partum hemorrhage
- Urinary tract infection (UTI)
- Upper respiratory tract infection
- Wound infection
- Post-operative fever
- Prolonged cathetharization
- Prolonged hospital stay

2.10. Maternal Mortality and Morbidity:

Maternal mortality and morbidity rates after cesarean section are approximately five times that of vaginal deliveries, especially the risks of bleeding, sepsis, blood clots, and amniotic fluid embolism. In subsequent pregnancy, CS increases the risk of placenta previa and placenta accreta which may lead to an increased risk of bleeding and perinatal hysterectomy. Technical difficulties caused by adhesions increase the risk of bladder and bowel injury.

Maternal deaths are rare in high-resource settings. This topic remains important, given the changing patterns in mode of delivery, with increasing caesarean section rates in most countries (Kallianidis et al., 2018).

2.11. Associated Factors in Cesarean Section:

2.11.1. Maternal factors

1. Age

Maternal age is a significant factor associated with the likelihood of cesarean sections (C/Ss), a surgical procedure used to deliver a baby through incisions in the mother's abdomen and uterus. The relationship between maternal age and C/S rates has been a subject of extensive research, and various factors contribute to this association (Martinelli et al., 2021).

Several studies have consistently shown an increased likelihood of C/Ss among older maternal age groups. Advanced maternal age, typically defined as 35 years and older, is associated with a higher incidence of complications during pregnancy and labor, such as gestational diabetes, hypertensive disorders, and placenta previa. These complications can increase the likelihood of an elective or emergency C/S to ensure the safety of both the mother and the baby (Šťastná et al., 2022).

A study by Claramonte et al. (2022), found that women aged 35 and older had a higher risk of C/S compared to younger women, even after adjusting for various confounding factors. The authors suggested that this increased risk could be attributed to age-related physiological changes, decreased uterine elasticity, and an elevated prevalence of medical conditions that may necessitate surgical intervention.

Furthermore, a systematic review and meta-analysis conducted by the World Health Organization (WHO) in 2010 found a consistent increase in C/S rates with advancing maternal age across different regions globally. The review emphasized the need for targeted interventions and obstetric care for older pregnant women to mitigate the associated risks (Fonseca et al., 2020).

It's important to note that while advanced maternal age is a well-established factor, adolescent pregnancies also show an association with increased C/S rates. A study by Freyermuth et al. (2017), reported that adolescent mothers were more likely to undergo C/Ss, citing factors such as inadequate prenatal care, increased rates of preterm birth, and cephalopelvic disproportion.

2. Body Mass Index:

While Body Mass Index (BMI) is a widely used indicator of body fat and a common tool in assessing maternal health during pregnancy, its association with Cesarean Sections (C/Ss) has been a subject of extensive research (Brenes-Monge et al., 2019). Several factors related to BMI contribute to an increased likelihood of C/Ss, and understanding these associations is crucial for optimizing maternal and fetal outcomes.

a. Obesity and Increased C/S Risk:

Numerous studies have consistently shown a positive correlation between obesity, often defined as a BMI of 30 or higher, and an elevated risk of C/S. A study concluded by Turner et al. (2019), found that the obese women were more likely to undergo C/Ss compared to those with normal BMI, highlighting the impact of excessive body weight on the mode of delivery.

b. Macrosomia and High BMI:

High BMI is frequently associated with fetal macrosomia, a condition where the baby is larger than average. Macrosomia

increases the likelihood of complications during labor, such as shoulder dystocia, which may necessitate a C/S. The risk of C/S significantly increased in women with a BMI greater than 30, particularly when associated with macrosomia (Agudelo-Espitia et al., 2019).

c. BMI and Failed Induction of Labor:

Women with higher BMIs are more likely to experience failed induction of labor, leading to an increased probability of C/S. A women with obesity had a higher rate of failed induction, contributing to the decision for C/S delivery (Claramonte et al., 2022).

d. Maternal Complications and C/S Risk:

Obesity is often linked to various maternal complications such as gestational diabetes and hypertensive disorders. These complications, in turn, heighten the risk of C/S delivery. The importance of managing maternal comorbidities to reduce the likelihood of C/Ss in obese women (Simko et al., 2019).

e. BMI and Emergency C/Ss:

High BMI is associated not only with elective C/Ss but also with emergency C/Ss. Women with obesity had an increased risk of unplanned C/Ss, indicating the impact of BMI on the unpredictability of the delivery process (Neumann et al., 2017).

3. Previous cesarean sections

Cesarean section (CS) is a surgical procedure to deliver a baby through incisions in the mother's abdomen and uterus. While it can be a life-saving intervention in certain situations, an increasing global concern is the rising rate of elective or unnecessary cesarean

sections. Previous cesarean sections (CS) are a significant factor associated with the likelihood of subsequent CS deliveries. Understanding the factors related to previous cesarean sections can shed light on the complexities surrounding this issue (Batieha et al., 2017).

One of the primary factors influencing the likelihood of a repeat cesarean section is the concept of "once a cesarean, always a cesarean". This phrase reflects the historical belief that women who have undergone a cesarean section should continue to have subsequent cesarean deliveries due to potential risks associated with vaginal birth after cesarean (VBAC). However, it is crucial to note that current medical guidelines encourage considering VBAC as a safe option for many women, provided certain criteria are met (Antoine & Young, 2021).

Maternal preference and request for cesarean section without medical indication is another significant factor contributing to the high rates of repeat CS. Some women may choose to have a repeat cesarean section due to various reasons, including fear of labor or concerns about potential complications during a vaginal birth (Panda et al., 2020).

Medical indications from previous cesarean sections, such as the reason for the initial surgery, can also influence the likelihood of a repeat CS. Common indications for cesarean delivery include fetal distress, malpresentation, and previous cesarean delivery itself. These factors contribute to the medical decision-making process surrounding subsequent deliveries (Keag et al., 2018).

Another relevant factor is the increasing trend of elective cesarean sections for breech presentation. While external cephalic

version and breech vaginal delivery are possible and supported by guidelines in certain situations, some women and healthcare providers may opt for a planned cesarean section to avoid potential complications associated with breech birth (Morton et al., 2020).

Social and cultural factors also play a role in the decision-making process regarding repeat cesarean sections. Cultural preferences, family influences, and societal norms can contribute to the choices women make regarding their mode of delivery (Chen et al., 2018).

2.11.2. Obstetric Factors

1. Gestational age

Gestational age, referring to the length of time a fetus has been developing in the uterus, plays a significant role in the decision-making process regarding Cesarean sections (C/Ss). Several factors associated with gestational age influence the likelihood of a C/S delivery, and healthcare providers consider these factors to ensure the well-being of both the mother and the baby (Buyuk et al., 2021).

In the early stages of gestation, particularly during the first and second trimesters, the risk factors for C/Ss are often related to maternal health conditions and fetal abnormalities. For instance, pregnancies with complications such as preeclampsia, gestational diabetes, or placental abnormalities may increase the likelihood of C/S delivery (Turner et al., 2019).

As gestation progresses, especially during the third trimester, factors such as fetal size and position become more prominent in the decision-making process. Macrosomia, where the fetus is larger than average, is associated with an increased

likelihood of C/S, as delivering a large baby vaginally may pose risks such as shoulder dystocia (ACOG, 2018). Additionally, breech presentation, where the baby's buttocks or feet are positioned to emerge first, is another gestational age-related factor that may lead to a C/S recommendation (Butt & Lim, 2019).

Research indicates that preterm and post-term pregnancies also have associations with C/Ss. Preterm births may be associated with C/Ss due to concerns about the baby's lung development and overall health (Souza et al., 2020). Post-term pregnancies, where gestation exceeds 42 weeks, may increase the likelihood of C/Ss due to concerns about the increased risk of stillbirth and complications associated with prolonged pregnancy (Modrzyńska et al., 2020).

2. Fetal presentation

Fetal presentation refers to the position of the baby's head and body in relation to the mother's pelvis during childbirth. The optimal fetal presentation for a vaginal delivery is a cephalic presentation, where the baby's head is positioned to be delivered first. However, certain fetal presentation factors can increase the likelihood of a Cesarean section (C/S) delivery. It's important to note that the decision for a C/S is typically made based on a combination of factors, including fetal presentation, maternal health, and the progress of labor (Begum et al., 2017).

Fetal presentation factor associated with an increased risk of C/S is the breech presentation, where the baby's buttocks or feet are positioned to be delivered first. Breech presentation is a well-established risk factor for C/S delivery, with rates ranging from 50% to 90% compared to cephalic presentations. The higher risk of complications, such as head entrapment and cord prolapse, during

breech deliveries contributes to the decision for C/S in many cases (Loya et al., 2022).

Another fetal presentation factor linked to increased C/S rates is the transverse lie, where the baby is positioned horizontally across the mother's pelvis. This presentation is associated with a higher risk of umbilical cord prolapse and difficulties in achieving a successful vaginal delivery. Transverse lie was a significant predictor for C/S delivery (Cillard et al., 2021).

In addition to breech and transverse presentations, other abnormal fetal presentations, such as face or brow presentation, can also contribute to an increased likelihood of C/S. These presentations may result in difficulties with engagement and descent during labor, leading to a higher risk of complications and the need for operative delivery (Anbukkarasi et al., 2020).

3. Multiple pregnancies

Multiple pregnancies, commonly referred to as twins, triplets, or higher-order multiples, pose unique challenges in obstetric care, often leading to an increased likelihood of Cesarean sections (C/Ss) due to various factors. Multiple pregnancies can arise from assisted reproductive technologies, such as in vitro fertilization (IVF), or occur spontaneously. The risk of complications during multiple pregnancies is higher than in singleton pregnancies, and this heightened risk contributes to the increased rate of Cesarean deliveries (Mahindra et al., 2020).

Factor associated with the increased likelihood of Cesarean sections in multiple pregnancies is the elevated risk of complications, including preterm birth and low birth weight. Multiple pregnancies are more prone to preterm delivery, and preterm birth is a well-established indication for Cesarean section

due to the potential risks to both the mother and the infants (Dorji et al., 2021).

Furthermore, the increased incidence of malpresentation in multiple pregnancies contributes to the higher rate of Cesarean sections. Malpresentation, where the fetus is not positioned head down, is more common in twin pregnancies, especially when the first twin is not in a cephalic (head-first) position. This situation often necessitates a Cesarean section to ensure the safest delivery for both infants (Ayalew et al., 2020).

Gestational complications, such as preeclampsia and gestational diabetes, are also more prevalent in multiple pregnancies, leading to an increased likelihood of Cesarean delivery. Preeclampsia, characterized by hypertension and organ dysfunction, is associated with an elevated risk of adverse outcomes for both the mother and the fetuses. Multiple pregnancies have a higher incidence of preeclampsia compared to singleton pregnancies, further contributing to the Cesarean section rate (Zhang & Xiao, 2019).

Additionally, the increased rates of fetal distress and abnormalities in the multiple pregnancies further support the association with Cesarean sections. Fetal distress is a common indication for Cesarean section in multiple pregnancies, emphasizing the importance of careful monitoring and timely interventions in these cases (Dhakal-Rai et al., 2022).

2.12. Nursing Management:

The nurse provide a comprehensive care for the mother is provided before, during, and after the surgical procedure in the context of nursing management for cesarean sections. In order to

assist the mother's physical and mental well-being, encourage a happy childbirth experience, and guarantee a speedy recovery, the nursing team is essential to achieve optimal health for the mother and her child (Tran et al., 2021).

2.12.1. Preoperative Care:

The preoperative pathway is a focused pathway that starts 30–60 minutes before the cesarean incision and ends at maternal (fetal) discharge from hospital, which allows for a more consistent and generalizable Enhanced Recovery After Surgery (ERAS) cesarean delivery (CD) process that includes the same comprehensive care to both unscheduled and scheduled cesarean delivery (Wilson et al., 2018).

Guidelines recommend a minimum preoperative fasting time of at least 2 hours from clear liquids, 6 hours from a light meal, and 8 hours from a regular meal. However, patients are usually asked not to eat anything for 12 hours prior to the procedure (Zhang et al., 2010).

The following are also included in preoperative management: (Arnold & Gawrys, 2020)

- Placement of an intravenous (IV) line
- Infusion of IV fluids (eg, lactated Ringer solution or saline with 5% dextrose)
- Placement of a foley catheter (to drain the bladder and to monitor urine output)
- Placement of an external fetal monitor and monitors for the patient’s blood pressure, pulse, and oxygen saturation

- Preoperative antibiotic prophylaxis (decreases risk of endometritis after elective cesarean delivery by 76%, regardless of the type of cesarean delivery)
- Evaluation by the surgeon and the anesthesiologist

2.12.2. Postoperative Care:

- Routine postoperative assessment
- Monitoring of vital signs, urine output, and amount of vaginal bleeding
- Palpation of the fundus
- IV fluids; advance to oral diet as appropriate, early feeding has been shown to shorten hospital stay
- IV or intramuscular (IM) analgesia if patient did not receive a long-acting analgesic or had general anesthesia; analgesia is usually not needed if patient received regional anesthesia, with/without a long-acting analgesic
- Ambulation on postoperative day 1; advance as tolerated
- If patient plans to breastfeed, initiate within a few hours after delivery; if patient plans to bottle feed, she may use a tight bra or breast binder in the postoperative period
- Discharge on postoperative day 2 to 4, if no complications
- Discuss contraception as well as refraining from intercourse for 4-6 weeks postpartum, unless the patient had long-acting reversible contraception (LARC) placed at the time of the procedure (Arnold & Gawrys, 2020).

2.14. Previous Studies:

Alemu et al (2023) conducted a cross-sectional study at two specialized Hospitals in Bahir Dar city, Ethiopia. The sample size was 495 mothers who had cesarean section. Checklist was used to

retrieve information from the patient medical document. Study population was selected from the operation registration book. Systematic sampling was used after arranging the study frame based on date of operation. Both bivariable and multivariable logistic regression was done. the study results, overall maternal complication rate was 44.04%. Living in rural setting (AOR = 4.247), having one or more obstetric complication (AOR = 1.913), cesarean section done at Second stage of labor (AOR = 4.358), having previous cesarean section (AOR = 3.540), emergency operation (AOR = 2.967), duration of surgery taking more than 60 min (AOR = 3.476) were found to be significantly associated with maternal complications. The study conclude that the magnitude of maternal complication of cesarean section was higher than most studies. Living in rural setting, having obstetric complications, previous cesarean scar, emergency surgeries, operation done in second stage of labor and prolonged duration of surgery are important predictors of maternal complication.

A cross-sectional study design was conducted on a total of 392 patients who underwent elective cesarean delivery in Debre Tabor Comprehensive Specialized Hospital, in North Central Ethiopia from October 15, 2020, to September 15, 2021. Data was collected using a validated Amsterdam questionnaire, after translating to the local language. The study conclude that the prevalence of preoperative anxiety among elective cesarean deliveries was found to be high. So, preoperative maternal counseling and anxiety reduction services should therefore be given top priority, particularly for those women who came from rural areas, are farmers, have no prior surgical or anesthetic experience, and are primiparous (Fentie et al., 2022).

A cross-sectional study was undertaken among women who underwent cesarean deliveries, from February 1 to September 30 in 2021, at Hawassa University Comprehensive Specialized Hospital, Ethiopia. The patient's medical file was read, and information was gathered from them using a structured questionnaire and checklist. The magnitude of moderate to severe post-operative pain after a cesarean section was 89.8% (95% CI 84.7, 93.5). Duration of procedure (AOR: 3.62, 95% CI: 1.33, 15.85), type of anesthesia (AOR: 2.38, 95% CI: 1.31, 8.71), and type of analgesics administered (AOR: 2.3, 95% CI: 1.28, 19.21) were significantly associated with moderate to severe post-operative pain. The study reported a moderate to severe post-cesarean pain within 24 h. The duration of the procedure, the type of anesthesia used, and the type of analgesics administered were all found to be significantly associated with postoperative pain after cesarean section (Hussen et al., 2022).

A retrospective cohort study were carried out in France by Carbonnel et al (2021) about consecutive cesarean deliveries; the study was performed at a secondary care facility between June 2017 and June 2019. Composite wound complications included infection, disruption and fluid collection occurring 30 days post-operatively. Medical records were reviewed and data including patient demographics, comorbidities, intra-partum characteristics were evaluated as potential risk factors for wound complications using multivariate logistic regression. Secondarily, post-operative management of wound complications was described. Premature membrane rupture and preeclampsia were two separate risk factors for wound complications during cesarean surgery. Before surgery, high-risk women should be informed about increased incidence of wound complications and preventative measures.

A cross-sectional study conducted at Kanglung Hospital, Trashigang, Bhutan, using the retrospective data from the birth registers maintained in comprehensive emergency obstetric care centers for the year 2018. The rate of CS in Bhutan was 18.7%. The indications for CS were previous CS, fetal distress, prolonged labor, and failed induction. The factors associated with CS were maternal age over 25 years, male child, women with smaller number of living children, multiple pregnancy, and gestation over 40 weeks. The study concluded that the CS was commonly performed for mothers with previous CS, fetal distress, and prolonged labor. Increasing maternal age, multiple pregnancy, and postdated pregnancy and those with one child, or none, were more likely to undergo CS. To reduce the CS rate, should focus on decreasing the primary CS rate as well as preventing over-diagnosis of prolonged labor by focusing on the partograph (Dorji et al., 2021).

Grabarz et al (2021) preformed a study to examination in retrospect of all labor-related cesarean, term, and singleton deliveries. A color-code system was used to classify three categories based on the severity of the emergency: green (no time constraint between surgical decision and birth), orange (birth within 30 minutes), and red (birth within 20 minutes). Excepted were scheduled cesarean sections. Perturbations were classified as intra-/post-operative and minor/major. Significant intraoperative complications were more common in the red group than in the green group, primarily postpartum hemorrhage. Among the minor complications, there was no difference on moderate postpartum hemorrhage and four times uterine artery wounds in the red group. The red group saw higher rates of infectious morbidity, the primary post-operative complication rate, at 6.1% overall when compared to the green group. The degree of labor emergency increases the pre-

and post-operative complications of emergency cesarean section delivery during labor. It would be great to identify laboring women who are more likely to need an emergency cesarean section early.

Ballesta-Castillejos et al (2020) preformed a cross-sectional observational study was conducted aimed at women who have been mothers between 2013 and 2018 in Spain; a study carred out because at the past few decades, overweight and obesity have become a growing health problem of particular concern for women of reproductive age as obesity in pregnancy has been associated with increased risk of obstetric and neonatal complications. Data were collected through an online survey of 42 items that was distributed through lactation associations and postpartum support groups. A total of 5871 women answered the survey, with a mean age of 33.9 years (SD = 4.26 years). In the data analysis, crude odds ratios (OR) and adjusted odds ratios (AOR) were calculated through a multivariate analysis. A linear relationship was observed between the highest BMI figures and the highest risk of cephalopelvic disproportion (AOR of 1.79 for obesity type III (95% CI: 1.06–3.02)), preeclampsia (AOR of 6.86 for obesity type III (3.01–15.40)), labor induction (AOR of 1.78 for obesity type III (95% CI: 1.16–2.74)), emergency C/S (AOR of 2.92 for obesity type III (95% CI: 1.68–5.08)), morbidity composite in childbirth (AOR of 3.64 for obesity type III (95% CI: 2.13–6.24)), and macrosomia (AOR of 6.06 for obesity type III (95% CI: 3.17–11.60)), as compared with women with normoweight. Women with a higher BMI are more likely to develop complications during childbirth and macrosomia.

An institutional-based cross-sectional study was conducted on a total of 320 mothers who gave birth at Debre Tabor Comprehensive Specialized Hospital in Ethiopia from July 01, 2020, to October 30, 2020. The samples were selected using the

convenience sampling technique. The Data were collected using a structured checklist. The overall prevalence of cesarean section was 39.1% in the study. Mothers age 35–39 years, educational level college and above, employed, mothers with a monthly income of >6000$, and mothers with a previous history of cesarean section were significantly associated with an increased risk of cesarean section. The prevalence of CS was high in Debre Tabor Comprehensive Specialized Hospital. Age of the mothers, educational status, occupation, monthly income, and previous history of cesarean section were significantly associated with an increased occurrence of cesarean section (Taye et al., 2020).

An analytical, retrospective, case-control study was conducted in Universidad Ricardo Palma at Spain by Sinchitullo Castillo et al (2020); the population was vaginal or caesarean deliveries attended during the years 2014 to 2018. The sampling was systematic, and the sample size was 988 deliveries, from this a 329 were caesarean sections. Chi-square and logistic regression tests were applied to calculate the odds ratio; The analysis was carried out with the statistical program SPSS 23. In pregnant women, a previous caesarean section was a factor associated with caesarean section ; neither age, gestational age, nor prenatal controls were a factor associated with caesarean section ($p>0.05$). Educational level was also not a factor associated with caesarean section, but the number of children was (OR = 0.83, 95% CI = 0.72-0.95). the study conclude that the women how have a previous caesarean sections, few children, an older age, were significant risk factors for cesarean delivery.

Beta et al (2019) performed a study of MEDLINE, EMBASE, CINAHL and The Cochrane Library was performed to

identify relevant studies reporting on maternal and/or neonatal complications in pregnancies with macrosomia having a birth weight (BW) > 4000 g and/or those with birth weight > 4500 g. Prospective and retrospective cohort and population-based studies that provided data regarding both cases and controls were included. Maternal outcomes assessed were emergency CS, Postpartum hemorrhage (PPH) and obstetric anal sphincter injury (OASIS). Neonatal outcomes assessed were shoulder dystocia, obstetric brachial plexus injury (OBPI) and birth fractures. Meta-analysis using a random-effects model was used to estimate weighted pooled estimates of summary statistics for each complication, according to birth weight. Seventeen studies reporting data on maternal and/or neonatal complications in pregnancy with macrosomia were included. In pregnancies with macrosomia having a BW > 4000 g, there was an increased risk of the maternal complications: emergency CS, PPH and OASIS. The corresponding values for pregnancies with BW > 4500 g were: 2.55 (2.33–2.78), 3.15 (2.14–4.63) and 2.56 (1.97–3.32). Similarly, in pregnancies with a BW > 4000 g, there was an increased risk of the neonatal complications: shoulder dystocia, OBPI and birth fractures. Macrosomia is associated with serious maternal and neonatal adverse outcomes. The study provides accurate estimates of these risks, which can be used for decisions on pregnancy management.

A systematic review was carried out with meta-analysis conducted at multiple stages, in the PubMed, Lilacs, and Web of Science databases using the following descriptors: (postpartum period, cesarean section or normal delivery, morbidity or mortality, postpartum haemorrhage and puerperal infection; for evaluating the maternal complication with delivery in a mixed sample of 1,051,543 mothers. The results obtained in the meta-analyses

indicate that women with cesarean section have a higher chance of maternal death and postpartum infection, but they have a lower chance of haemorrhage. The quality of evidence was considered low for bleeding and moderate for postpartum infections and maternal mortality. Therefore, caesarean sections should be performed with caution and safety, especially when the benefits outweigh the risks of surgery (Mascarello et al., 2017).

2.15.Literature Synthesis:

Complications and associated factors related to the types of cesarean sections among mothers constitute a critical area of concern in maternal healthcare. Cesarean sections, whether elective or emergency, are common procedures aimed at ensuring the safety of both the mother and the infant. However, various factors contribute to complications associated with different types of cesarean sections.

In elective cesarean sections, where the procedure is planned in advance, maternal age, pre-existing medical conditions, and a history of previous cesarean deliveries play crucial roles. Advanced maternal age may increase the risk of complications such as hypertension and gestational diabetes, while a previous cesarean section may heighten the likelihood of complications related to adhesions and scar tissue.

Emergency cesarean sections, occurring as a response to unforeseen complications during labor, present their own set of challenges. Factors such as prolonged labor, fetal distress, and malpresentation contribute to the need for emergency interventions. These situations can increase the risk of complications such as infection, excessive bleeding, and anesthesia-related issues.

Additionally, the choice between a vertical or horizontal uterine incision during cesarean sections can impact outcomes. Vertical incisions, though rarely performed today, may lead to a higher risk of uterine rupture in subsequent pregnancies. Horizontal incisions, particularly the low transverse incision, are generally preferred due to reduced rates of complications such as wound infections and dehiscence.

Other factors influencing complications include obesity, multiple gestations, and inadequate prenatal care. Maternal obesity increases the likelihood of surgical and postoperative complications, while managing multiple gestations presents unique challenges during delivery. Inadequate prenatal care can result in undetected health issues that may contribute to complications during cesarean sections.

To mitigate complications, healthcare providers must carefully assess risk factors, provide comprehensive prenatal care, and tailor the cesarean section approach to individual patient needs. Continuous advancements in medical technologies and surgical techniques also contribute to improving outcomes for both elective and emergency cesarean sections.

Chapter Three

Methodology

Chapter Three

Methods and Materials

Scientific research methodology encompasses a set of standards and controls crucial for conducting successful research. Organization and accuracy are vital aspects, ensuring that the research benefits readers. This involves employing various research methods, with the study design and all steps taken by the researcher outlined throughout the investigation process.

3.1.Study Design

The descriptive cross-sectional study design technique entails questioning individuals of the study population with the purpose of describing the examined phenomena in terms of its nature and degree of presence. The descriptive cross-sectional method entails questioning study participants about their complications and associated factors related to the types of caesarean sections. Since the problem of the study is related to the present, and that its study will be done through direct interrogation, as well as the aim of this study is to stop at the limit of description of the study variables, and therefore the appropriate approach is the cross sectional designs, which depends on the study of the phenomenon and the statement of its characteristics and size, as well as the collection and interpretation of information.

The descriptive cross sectional study design is done through the limit includes the following:

1. Study subject: This was limited to described the complications and associated factors related to the types of caesarean sections.
2. Spatial limit: The study limited at Gynaecology and Obstetrics Hospital.
3. Time limits: The research took place over a period of December 15th, 2023 to March 19th, 2024.
4. Human limit: Mothers who undergo caesarean sections.

3.2.Administrative Arrangements

Before commencing the collection of study data, the necessary official clearances were diligently obtained from relevant authorities, underscoring the ethical and procedural foundation of the research. These clearances include:

1. **Approval from the University of Kerbala / College of Nursing Council** (Appendix A1):

The study received formal approval from the University of Kerbala, specifically the College of Nursing Council. This endorsement signifies the academic validation and support for the research endeavor.

2. **Official Permission from Kerbala Health Directorate to Access Gynaecology and Obstetrics Teaching Hospital** (Appendix A2):

To ensure formal access to the Gynaecology and Obstetrics Teaching Hospital in Kerbala Governorate, official permission was secured from the Kerbala Health Directorate. This step establishes the legal and regulatory basis for the study's engagement with the healthcare facility.

3. **Informed Consent from Mothers:**

Prior to their involvement in the study, mothers were approached and provided with a detailed explanation of the study's objectives and its potential contributions. Emphasis was placed on the confidentiality of their information, assuring them that all provided data would be used solely for scientific and research purposes. This process underscores the principles of autonomy and privacy, demonstrating respect for the participants' rights and well-being.

3.3.Setting of the Study

The study was conducted at Gynaecology and Obstetrics Teaching Hospital Kerbala Governorate. It is one of the hospitals in the Kerbala city that deals with obstetrics and gynaecology, which are medical specialties that focus on the female reproductive system, pregnancy and childbirth.

Hospitals dedicated to these specialties typically offer a range of services, including prenatal care, assistance with childbirth, gynaecological surgeries, and treatment of various women's health problems.

3.4.Sample of the Study

The current research is centered on a cohort of mothers who have undergone caesarean sections, utilizing a non-probability convenience sample. The study encompasses a total of 270 mothers receiving care at the Gynaecology and Obstetrics Teaching Hospital in Karbala Governorate. The selection of this non-probability convenience sample was meticulous and followed specific criteria, elucidated in detail as follows:

3.4.1. Inclusion Criteria:

Mothers who undergo caesarean sections: The primary focus of the study is on mothers who have experienced caesarean deliveries, ensuring relevance to the research objectives.

Mothers who willingly agreed to participate: To maintain ethical standards, only those mothers who voluntarily agreed to be part of the study were included, emphasizing informed consent and respect for individual autonomy.

3.4.2. Exclusion Criteria:

Mothers involved in the pilot study: Mothers who were part of any preliminary or pilot studies were excluded to avoid potential biases stemming from prior exposure to study elements.

Mothers who declined or refused to participate: Excluding mothers who declined or refused to take part in the study helps maintain the integrity of the research and ensures a more homogeneous sample of participants.

3.5.Study Instruments

The questionnaire serves as a crucial tool for collecting data essential to achieving the study's intended outcomes. The student

researcher meticulously crafted this questionnaire to elucidate the study's objectives and significance, aiming to garner responses that address the study's key inquiries (refer to Appendix D).

3.5.1. Socio-demographic Information:

This section encompasses critical socio-demographic details, including participants' age, education level, occupation, monthly income, and body mass index (BMI).

3.5.2. Reproductive History:

This section delves into the participants' reproductive history, covering gravida, abortion, stillbirth, premature delivery, post-mature delivery, previous cesarean section (c/s), normal delivery, antenatal care services, referral status, gestational age, and medical illnesses.

3.5.3. Operational History:

This section explores the operational history, encompassing the duration of surgery, antibiotic use before surgery, decision to delivery, and types of anaesthesia administered.

3.5.4. Indications for Caesarean Section:

This section outlines 21 indications, including recurrent c/s, fetal distress, breech presentation, prolonged labor, preeclampsia/eclampsia, diabetes mellitus, cephalo-pelvic disproportion, antepartum hemorrhage, post-term pregnancy, obesity, maternal preference for caesarean section, pregnancy after primary or secondary infertility, umbilical cord compression/prolapse, oligohydramnios, twin pregnancy, previous pelvic reconstructive surgery, congenital anomaly of the uterus, congenital anomaly of the fetus, premature rupture of membranes, placenta accreta, and irregular fetal heart. These indications are measured on two levels: Yes or No.

3.5.4. Complications Associated with Caesarean Section:

This section covers both preoperative and postoperative complications. Preoperative complications include injury to the urinary bladder, injury to the urethra or bowel, anesthetic complications, and severe bleeding during the operation. Postoperative complications encompass abdominal distension, respiratory infection, wound infection, pulmonary embolism, burst abdomen, post-partum hemorrhage, hysterectomy, deep vein thrombosis (DVT), surgical site infections (SSI), restricting the number of children, postpartum infection, mastitis, fever, anemia, muscle pain, laryngeal spasm, and no complications. These complications are measured on two levels: Yes or No.

The researcher adhered strictly to questionnaire-writing principles, emphasizing the need for comprehensive, reliable, and clear information. To ensure clarity, vague and complex questions were intentionally avoided. The questions are predominantly closed-ended, requiring respondents to provide specific, relevant answers.

2.7.Validity of the Questionnaire

The face validity of a study tool refers to the initial assessment of the tool by experts to determine whether it appears to be valid and relevant for its intended purpose. In this case, the study tool was translated into Arabic, and specialists from diverse nursing departments were invited to participate in the assessment.

The process involved the experts reviewing each item on the study questionnaire and providing their opinions and feedback. The assessment focused on three main aspects:

1. Linguistic Relevance: The experts assessed whether the language used in the translated questionnaire was appropriate, clear, and understandable to the target population (in this case, Arabic-speaking individuals). Ensuring linguistic relevance is crucial to ensure that

respondents can comprehend the questions and provide accurate responses.

2. Relationship to Study Variables: The specialists examined each questionnaire item to determine its alignment with the study's intended variables. In other words, they assessed whether the questions were pertinent to the aspects of the research that the tool aimed to measure. This step helps ensure that the questionnaire is measuring what it is intended to measure.
3. Applicability to the Study Community's Setting: The experts evaluated whether the questionnaire items were suitable and applicable to the specific community or population that the study focused on. This step is essential to ensure that the tool is culturally sensitive and relevant to the context in which it will be used.

By involving specialists from various nursing departments to obtain diverse perspectives and expertise to enhance the overall face validity of the questionnaire. The feedback provided by the experts could lead to refinements and improvements to the tool before it is administered to the actual study participants, thereby increasing the likelihood of obtaining meaningful and reliable data.

The validity is determined through the use of panel of (11) experts. They are (7) faculty members from the College of Nursing/ University of Karbala, (3) faculty members from the College of Medicine/ University of Babylon, and (1) faculty members from the College of Medicine/ University of Al-Warith (Appendix E). The experts responses indicated that minor changes should be done to some items and it's were made according to their suggestions , then the final draft was completed to be ready for data collection.

3.8.Pilot Study

This preliminary investigation was conducted to assess the stability, credibility, clarity, and efficiency of the study tool, as well as to determine the standard time required for data collection per subject through interview procedures. Additionally, the aim was to identify and address any potential difficulties that may arise. The pilot study is conducted over a period from December 7th, 2023 to December 13th, 2023.

The pilot study sought to achieve the following objectives:

1. Adequacy of research tools development and testing.
2. Evaluation of the instrument's reliability.
3. Identification of logistical issues related to the proposed methods.
4. Assessment of proposed data analysis approaches to detect potential issues.
5. Estimation of the researcher's time required during data collection.

3.8.1 Results of Pilot Study:

1. The questionnaire demonstrated reliability.
2. The time needed to complete the questionnaire ranged from 15-20 minutes.
3. Clarity and understanding of the instrument items regarding the underlying phenomenon of the study were observed (refer to Table 3-1).

3.8.2 Reliability of Questionnaire Format Items:

The questionnaire is a widely used tool for collecting information, and its main objective is to obtain relevant data in a realistic and accurate manner. Reliability, in this context, refers to the consistency and balance of measurement results for a given phenomenon. Repeatability, or obtaining the same findings under stable conditions through repeated measurements, is a key aspect of reliability.

Testing for reliability is crucial as it reflects the consistency across the items of a measuring questionnaire (Taherdoost, 2016). The accepted coefficient of reliability for the study questionnaire, measured through internal consistency (Cronbach's Alpha), is 0.70 (as indicated in Table 2-1). This finding suggests that the instrument was effective, significant, and valid for the research topic of " Complications and Associated Factors related to the Types of Caesarean Sections among Mothers".

3.8.3.Reliability of the Questionnaire:

The study involved a cohort of 20 participants, with a student researcher personally engaging with each participant. The researcher introduced the study, inviting individuals to share their perspectives on complications and associated factors related to the types of caesarean sections among mothers. Participants were briefed on the research's purpose and title, and then asked to complete a study paper, ensuring clarity and assessing the estimated time required for completion.

The researcher collect the data throughout the interviews, providing support as needed. Each participant was allocated an estimated 15-20 minutes to complete the study tool. Following the pilot study, data analysis revealed no necessary adjustments, leading to its exclusion from the original sample. The Cronbach's α value, ranging from 0.70 and higher, underscored the high reliability of the collected data.

Table3-1:Reliability of the Studied Questionnaire (*n=20*)

Inter-retort Reliability

Variables	N of Items	Cronbach's Alpha	Ass.
Inter-retor-inter-observer	Indication of C/s	.83	Acceptable
Inter-retor-inter-observer	Complications of C/s	.79	Acceptable

T

This table is statistically formed to show the reliability coefficient for the study instrument. The calculated result shows that the questionnaire is reliable measure to study the phenomenon of complications and

associated factors related to the types of caesarean sections among mothers on the same population at any time in the future.

3.9.Ethical Considerations

Prior to commencing the study, the researcher secured approval for the research proposal from the College of Nursing, the Ethics Committee, and the Graduate Studies Committee of the College of Nursing at the University of Kerbala (see Appendix B-I). Ensuring adherence to ethical obligations is paramount for researchers conducting a study. Prior to collecting data from the identified community, it is imperative for the researcher to clearly articulate the study's main purpose and objectives to potential participants. Maintaining strict confidentiality of the data obtained from the study sample is essential, with a commitment to utilizing the information solely for scientific purposes related to the study.

Before initiating the data collection process, the researcher provides a comprehensive overview of the research's scientific background and its objectives to the participants. Explicitly outlining the study aims, participants are informed verbally and invited to join the study on a voluntary basis. Upon obtaining their consent, participants receive an anonymous questionnaire to safeguard their privacy throughout the research.

3.10.Data Collection

The actual data collection spanned three months, commencing from December 15th, 2023 to March 19th, 2024. Before the distribution of questionnaires to study participants, formal approval was secured from the Karbala Health Directorate. Subsequently, the questionnaire underwent a meticulous validation process to ensure its reliability.

The student researcher personally conducted interviews with participants who undergo Caesarean Sections. During these individual sessions, participants were provided with comprehensive instructions,

queries about the form were addressed, and encouragement to partake in the study was extended, accompanied by expressions of gratitude for their cooperation. Each interview, lasting between 15-20 minutes, followed a structured approach that involved several key steps integral to the study design:

1. Definition of the data to be collected through the questionnaire, aligned with the study's specific inquiries.
2. Specification of the method and format for the questionnaire.
3. Identification of the criterion determining the nature of responses within the questionnaire.
4. Presentation of the questionnaire to a supervisor for feedback, incorporating opinions and observations to enhance its development.
5. Evaluation of the questionnaire by a panel of experts, incorporating their insights to further refine and modify it.
6. Implementation of a reliability test involving the distribution of the questionnaire to a sample group of 20 mothers.
7. Finalization of the questionnaire in its ultimate form, followed by printing, thorough review, and utilization for the purpose of data collection.

3.11.Statistics Data Analysis

To conduct a comprehensive statistical analysis of the data gathered from the study sample and derive meaningful results, the researcher utilized both SPSS-23 and Microsoft Excel (2010) programs. These tools were employed to systematically analyze the data, establish relationships between variables, and ultimately generate the conclusive findings of the research through a series of rigorous statistical tests.

3.11.1 Descriptive Analysis

Within the descriptive analysis, the researcher employed a range of mathematical and statistical techniques to quantitatively depict essential

attributes of the data. This was accomplished through the creation of tables and charts, serving as visual aids to effectively convey the key characteristics of the dataset. The primary objective of employing descriptive statistics was to present a clear, categorized, and summarized representation of the data, facilitating easy comprehension for the intended audience. This methodological approach ensured a thorough exploration of the dataset, enhancing the overall interpretability of the research findings:

1. Utilizing statistical tables such as Frequencies (No.) and Percent (%).
2. Computing the average scores (M ±).
3. Additionally, the standard deviation test ±SD is employed.

3.11.2.Inferential approach

1. Cronbach alpha

The analysis involves employing the Cronbach alpha correlational coefficient, which assesses the internal consistency of the study instrument.

2. Odds ratio

The odds ratio (OR) is a measure of association between an exposure and an outcome. It is commonly used in case-control studies. The formula for calculating the odds ratio is:

$$\textbf{Odds Ratio (OR)}=\frac{\boldsymbol{Odds\ of\ Exposure\ in\ Cases}}{\mathbf{1}}$$

1. Odds of Exposure in Cases is the odds of the exposure occurring in the group with the outcome.
2. Odds of Exposure in Controls is the odds of the exposure occurring in the group without the outcome.

Chapter Four

Results of the Study

Chapter Four

The Results of the Study

Within the framework of the present objectives of the study, the findings incorporates both descriptive and inferential statistical approaches. The following aspects encapsulate the essence of this dual analytical strategy:

Table 4.1.Distribution of Study Sample by their Characteristics

Characteristics	Characteristics	N	%
Age/ years			
	<20	52	19.3
	>20	218	80.7
Education level			
	Uneducated	46	17.0
	Educated	224	83.0
Occupation			
	Employed	42	15.6
	Unemployed	228	84.4
Monthly income			
	Insufficient	60	22.2
	Sufficient	210	77.8
BMI			
	Normal	191	70.7
	Obese	79	29.3

N. Number; %= Percentage

The table delineates the socio-demographic characteristics of the study participants, emphasizing frequencies and percentages. Among the 270 mothers involved in the current study focusing on caesarean section, a significant majority (80.7%) were aged over 20 years, while a smaller proportion (19.3%) fell below this age threshold.

Regarding educational backgrounds, the data underscores a notable trend, with 83% of participants being educated, surpassing the 17% who reported being uneducated. Occupational status reveals that a substantial 83.4% were unemployed, juxtaposed with the 15.6% who were employed.

Turning attention to monthly income, the findings indicate a prevalent financial sufficiency among participants, with 77.8% expressing

adequacy compared to 22.2% indicating insufficiency. In terms of body mass index (BMI), the majority (70.7%) exhibited a normal BMI, while 29.3% were classified as obese.

Table 4.2.Distribution of Study Sample by their Reproductive History

Reproductive	Characteristics	N	%
Gravida			
	Primi	76	28.1
	Multi	194	71.9
Abortion			
	Yes	44	16.3
	No	226	83.7
Still birth			
	Yes	75	27.8
	No	195	72.2
Premature delivery			
	Yes	78	28.9
	No	192	71.1
Post-mature Delivery			
	Yes	21	7.8
	No	249	92.2
Previous C/s			
	Yes	43	15.9
	No	227	84.1
Normal delivery			
	Yes	193	71.5
	No	77	28.5
Antenatal Care			
	Regular	132	48.9
	Irregular	138	51.1
Referral status			
	Yes	79	29.3
	No	191	70.7
Gestational age			
	37-41 weeks	265	98.1
	>42 weeks	5	1.9
Medical-illness			
	Yes	56	20.7
	No	214	79.3

N. Number; %= Percentage

The table presents a comprehensive overview of the reproductive history of the study participants, underscoring frequencies and percentages. Among the 270 mothers included in the current study, which focuses on caesarean section outcomes, a noteworthy majority (71.9%) were multi-gravida. Additionally, a substantial proportion reported no

history of abortion (83.7%), stillbirth (72.2%), premature delivery (71.1%), post-mature delivery (92.2%), previous caesarean section (84.1%), and irregular adherence to antenatal care services (51.1%). Furthermore, a significant portion of the participants had a normal virginal delivery (71.5%), while the majority did not experience a referral during pregnancy (70.7%). The gestational age between 37-41 weeks was prevalent among 98.1% of the participants, and the majority reported no medical illness associated with pregnancy (79.3%).

Table 4.3.Distribution of Study Sample by their Operational History

Reproductive	Characteristics	N	%
Duration of surgery			
	<30 min	63	23.3
	>30 min	207	76.7
Antibiotic before surgery			
	Yes	208	77.0
	No	62	23.0
Decision to delivery			
	<1 h	76	28.1
	>1 h	194	71.9
Types of anesthesia			
	Spinal	7	2.6
	General	263	97.4

N. Number; %= Percentage

The table offers a thorough analysis of the operational history of the study participants, highlighting frequencies and percentages. Within the 270 mothers considered in this study, centered on caesarean section types, a significant majority (76.7%) experienced a surgical duration exceeding 30 minutes. Furthermore, a notable proportion revealed no antibiotic usage before surgery (77%). Beyond an hour, the decision to proceed with childbirth was determined by the mothers in 71.9% of cases, with general anaesthesia being the predominant choice for caesarean section deliveries (97.4%).

Table 4-4.Factors Associated with Types of Caesarean Section among Mothers

No.	Factors	Class	Type of C/s		Total	OR (CI 95%)	Sig.
			Elective	Emergency			
1	Recurrent C/S	Yes	62	76	138	1.107	.006
		No	56	76	132		
2	Fetal distress	Yes	28	35	63	1.040	.002
		No	90	117	207		
3	Breech	Yes	12	14	26	1.116	.032
		No	106	138	244		
4	Prolonged labour	Yes	29	43	72	.826	.494
		No	89	109	198		
5	Preeclampsia/eclampsia	Yes	24	31	55	0.997	.991
		No	94	121	215		
6	Diabetes mellitus	Yes	5	5	10	.301	.142
		No	113	147	260		
7	Cephalo-pelvic disproportion	Yes	4	5	9	1.032	.044
		No	114	147	261		
8	Antepartum hemorrhage	Yes	4	7	11	0.727	.616
		No	114	145	259		
9	Post term	Yes	12	5	17	3.328	.021
		No	106	147	253		
10	Woman's weight (obesity)	Yes	0	1	1	0.871	.377
		No	118	151	269		
11	Maternal wish for cesarean section	Yes	32	45	77	.885	.654
		No	86	107	193		
12	Pregnancy after primary or secondary infertility	Yes	16	19	35	.098	.137
		No	102	133	235		
13	Umbilical cord compression/ prolapsed	Yes	7	11	18	0.808	.980
		No	111	141	252		
14	Oligohydramnios	Yes	12	14	26	0.116	.791
		No	106	138	244		
15	Twin pregnancy	Yes	9	9	18	1.312	.047
		No	109	143	252		
16	Previous pelvic reconstructive surgery	Yes	4	4	8	1.298	.016
		No	114	148	262		
17	Congenital anomaly of the uterus	Yes	4	5	9	.032	.964
		No	114	147	261		
18	Congenital anomaly of the fetus	Yes	10	9	19	0.471	.416
		No	108	143	251		
19	Premature rupture of membrane	Yes	28	32	60	0.167	.600
		No	90	120	210		
20	Placenta accreta	Yes	4	6	10	0.854	.810
		No	114	146	260		
21	Irregular fetal heart	Yes	28	36	64	0.002	.993
		No	90	116	206		

OR= Odds Ration; CI= Confidence Interval; Sig.= Significant Level

The results indicate that the recurrent C/s [*OR= 1.107; p= .006*], fetal distress [*OR= 1.040; p= .002*], breech [*OR= 1.116; p= .032*], post-term [*OR= 3.328; p= .021*], twin pregnancy [*OR= 1.312; p= .047*] and Previous pelvic reconstructive surgery [*OR= 1.298; p= .016*] are factors associated with types of caesarean section.

Table 4-5.Intraoperative Complications Associated with Types of Caesarean Section among Mothers

No.	Intraoperative Complications	Class	Type of C/s		Total	OR (CI 95%)	Sig.
			Elective	Emergency			
1	Injury to the urinary bladder	Yes	1	2	3	0.641	.716
		No	117	150	267		
2	Injury urethra or bowel	Yes	0	1	1	0.781	.377
		No	118	151	269		
3	Anesthetic complication	Yes	0	1	1	0.781	.377
		No	118	151	269		
4	Sever bleeding during the operation	Yes	41	55	96	0.939	.807
		No	77	97	174		

OR= Odds Ration; CI= Confidence Interval; Sig.= Significant Level

The results indicate non-significant associations between intraoperative complications of caesarean section delivery and probability of undergoing a elective or Emergency caesarean section delivery (p> 0.05).

Table 4-6.Postoperative Complications Associated with Types of Caesarean Section among Mothers

No.	Post-operative Complications	Class	Type of C/s		Total	OR (CI 95%)	Sig.
			Elective	Emergency			
1	Abdominal distension	Yes	74	97	171	0.954	.852
		No	44	55	99		
2	Respiratory infection	Yes	36	53	89	0.820	.450
		No	82	99	181		
3	Wound infection	Yes	0	2	2	1.787	.011
		No	118	150	268		
4	Pulmonary embolism	Yes	9	16	25	0.702	.415
		No	109	136	245		
5	Burst abdomen	Yes	42	55	97	0.975	.920
		No	76	97	173		
6	Post-partum hemorrhage	Yes	12	16	28	0.962	.924
		No	106	136	242		
7	Hysterectomy	Yes	12	16	28	0.962	.924
		No	106	136	242		
8	Deep vein thrombosis (DVT)	Yes	2	2	4	0.293	.739
		No	116	150	266		
9	Surgical sit infections (SSIs)	Yes	1	2	3	0.641	.716
		No	117	150	267		
10	Restrict the number of children	Yes	33	47	80	0.867	.598
		No	85	105	190		
11	Postpartum infection	Yes	79	100	179	1.053	.042
		No	39	52	91		
12	Mastitis	Yes	1	1	2	1.291	.047
		No	117	151	268		
13	Fever	Yes	44	59	103	0.937	.798
		No	74	93	167		
14	Anemia	Yes	20	23	43	1.145	.008
		No	98	129	227		
15	Muscle pain	Yes	110	141	251	1.073	.032
		No	8	11	19		
16	Laryngeal spasm	Yes	16	23	39	0.880	.715
		No	102	129	231		
17	No complications	Yes	3	2	5	.957	.458
		No	115	150	265		

OR= Odds Ration; CI= Confidence Interval; Sig.= Significant Level

The results indicate that the wounds infection C/s [*OR= 1.787; p= .011*], postpartum infection [*OR= 1.053; p= .042*], mastitis [*OR= 1.291; p= .047*], anemia [*OR= 1.145; p= .008*] and muscle pain [*OR= 1.073; p= .032*] are post-operative complications associated with types of caesarean section.

Table4-7. Socio-demographic-related Factors Associated with Types of Caesarean Sections among Mothers

Factors	Class	Type of C/s		Total	OR (CI 95%)	Sig.
		Elective	Emergency			
Age/ years	<20	40	12	52	5.983	.000
		76.9%	23.1%	100.0%		
	>20	78	140	218		
		35.8%	64.2%	100.0%		
Education level	Uneducated	42	4	46	20.477	.000
		91.3%	8.7%	100.0%		
	Educated	76	148	224		
		33.9%	66.1%	100.0%		
Occupation	Employed	18	24	42	0.014	.904
		42.9%	57.1%	100.0%		
	Unemployed	100	128	228		
		43.9%	56.1%	100.0%		
Monthly income	Insufficient	26	34	60	0.981	.948
		43.3%	56.7%	100.0%		
	Sufficient	92	118	210		
		43.8%	56.2%	100.0%		
BMI	Normal	82	109	191	0.899	.691
		42.9%	57.1%	100.0%		
	Obese	36	43	79		
		45.6%	54.4%	100.0%		

OR= Odds Ration; CI= Confidence Interval; Sig.= Significant Level

The research findings indicate a significant relationship between maternal age and the likelihood of elective caesarean section delivery. Specifically, mothers under the age of 20 demonstrate a higher propensity for elective caesarean sections compared to those aged 20 or older [*OR= 5.983; 95%CI; p= .000*].

Additionally, the study reveals a noteworthy relationship between education level and the types of caesarean section. Notably, an uneducated mother exhibits a substantially greater likelihood of giving birth via elective caesarean section, being twenty times more at risk compared to an educated mother [*OR= 20.477; 95%CI; p= .000*].

The study reveals that is no relationship between C/S and occupation, monthly income and BMI at p-value (0.904; 0.948; 0.691) respectively.

Table 4-8. Reproductive-related Factors Associated with Types of Caesarean Sections among Mothers

Factors	Class	Type of C/s		Total	OR (CI 95%)	P-value
		Elective	Emergency			
Gravida	Primi	33	43	76	0.984	.953
		43.4%	56.6%	100.0%		
	Multi	85	109	194		
		43.8%	56.2%	100.0%		
Abortion	Yes	17	27	44	0.779	.459
		38.6%	61.4%	100.0%		
	No	101	125	226		
		44.7%	55.3%	100.0%		
Still birth	Yes	31	44	75	0.875	.626
		41.3%	58.7%	100.0%		
	No	87	108	195		
		44.6%	55.4%	100.0%		
Premature Delivery	Yes	31	47	78	0.796	.403
		39.7%	60.3%	100.0%		
	No	87	105	192		
		45.3%	54.7%	100.0%		
Post-mature Delivery	Yes	21	0	21	2.567	.000
		100.0%	0.0%	100.0%		
	No	97	152	249		
		39.0%	61.0%	100.0%		
Previous C/s	Yes	40	3	43	25.470	.000
		93.0%	7.0%	100.0%		
	No	78	149	227		
		34.4%	65.6%	100.0%		
Normal delivery	Yes	84	109	193	0.975	.925
		43.5%	56.5%	100.0%		
	No	34	43	77		
		44.2%	55.8%	100.0%		
ANC	Regular	94	38	132	11.750	.001
		71.2%	28.8%	100.0%		
	Irregular	24	114	138		
		17.4%	82.6%	100.0%		
Referral status	Yes	33	46	79	0.895	.681
		41.8%	58.2%	100.0%		
	No	85	106	191		
		44.5%	55.5%	100.0%		
Gestational age	37-41 weeks	115	150	265	0.511	.458
		43.4%	56.6%	100.0%		
	>42 weeks	3	2	5		
		60.0%	40.0%	100.0%		
Medical-illness	Yes	51	5	56	22.379	.000
		91.1%	8.9%	100.0%		
	No	67	147	214		
		31.3%	68.7%	100.0%		

OR= Odds Ration; CI= Confidence Interval; Sig.= Significant Level

The study findings indicate a significant relationship between post-mature delivery and the likelihood of elective caesarean section delivery. Specifically, mothers who are delivered post mature demonstrate a higher propensity for elective caesarean sections compared to those who are no delivered post mature in twice time [*OR= 2.567; 95%CI; p= .000*].

Additionally, mothers with a history of previous caesarean sections face a substantially elevated risk, being 25 times more likely to undergo elective caesarean section compared to those without such history [*OR=25.567; 95%CI; p=0.000*].

The results indicate that a mother who did not adhere to antenatal care on a regular basis was eleven times more likely to undergo a elective caesarean section compared to those who adhere to antenatal care on a regular basis [*OR= 11.750; 95%CI; p= .001*].

Additionally, the presence of diseases associated with pregnancy amplifies the likelihood of a caesarean section, with affected mothers being twenty-two times more prone to this delivery method compared to those without such medical conditions [*OR= 22.379; 95%CI; p= .000*].

Table 4-9. Operational-related Factors Associated with Types of Caesarean Sections among Mothers

Factors	Class	Type of C/s		Total	OR (CI 95%)	Sig.
		Elective	Emergency			
Duration of surgery	<30 min	27	36	63	0.956	.877
		42.9%	57.1%	100.0%		
	>30 min	91	116	207		
		44.0%	56.0%	100.0%		
Antibiotic before surgery	Yes	90	118	208	0.926	.792
		43.3%	56.7%	100.0%		
	No	28	34	62		
		45.2%	54.8%	100.0%		
Decision to delivery	<1 h	32	44	76	0.913	.740
		42.1%	57.9%	100.0%		
	>1 h	86	108	194		
		44.3%	55.7%	100.0%		
Types of anesthesia	Spinal	3	4	7	0.965	.946
		42.9%	57.1%	100.0%		
	General	115	148	263		
		43.7%	56.3%	100.0%		
		P= .724				

OR= Odds Ration; CI= Confidence Interval; Sig.= Significant Level

The results indicate non-significant associations between operational-related factors and the probability of undergoing a elective or Emergency caesarean section delivery. More specifically, the types of surgery (p= .724), duration of surgery (p= .877), antibiotic administration before surgery (p= .792), decision to delivery interval (p= .740), and the method of anaesthesia (p= .946) all exhibited non-significant associations.

Chapter Five

Discussion of the Study Results

Chapter Five

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The aspects and issues linked to mothers as far as the different types of caesarean are multifactorial, that is, there is an overlap of social, medical, and obstetric determinants that have an effect. C-sections are done by obstetricians, which can be elective at times and sometimes it becomes an emergency procedure. There are an infinite number of problems tied to these operations. Medical operations can lead to a number of complications like infection, haemorrhage and wound related problems. Maternal factors like obesity, advanced age and pre-existing medical conditions could lead to adverse results. This chapter is occupied by a research results explanation, which is presented in tables. This is the aim of the report that I will be discussing.

5.1.Socio-demographic Characteristics of the Study Sample

The socio-demographic characteristics of the participants impact the health care decision-making processes and therefore, they are crucial for the improvement of the caesarean section prevalence. The major participants in our current study (270 mothers) were above the age of 20, being 80.7% of whom, which points out that most women who undergo C-sections are in their adult age. This result is in line with the study of the researchers' previous work that shows that as the mother's age increases, the probability of caesarean section increases (Rydahl et al., 2019). The most probable reason probably to be the grandmother's health or medical advice for the grandchild's future.

However, the education background is also a part of the significant social-demographic profile. There is a remarkable trend which is that 83% of the participants have a history in the education sector and 17% of them don’t. It hence becomes vital to increase the awareness and decision-making processes related to the delivery methods and also maternity health

decisions (Sanders & Crozier, 2018). Education, the individual's educational background is also another factor that can play a huge role in his or her decision-making processes, particularly, in maternal health. An educated society can play a key role in making correct evaluations of medical information, considering the risk and benefits, and the conversations about the healthcare issues with the health professionals. Studies have shown that individuals with a college education are more likely to understand complex healthcare information and make better choices compared to people who have never attended school (Mielewczyk & Boyle, 2023).

Social-economic environs around caesarean sections play an important role in establishing occupational stratification. The research comes out with a really shocking figure that 83.4% of the participants are jobless while 15.6% are employed. Such a gap is an indication of how social-economic problems could result in the lacking of healthcare accessibility and the decision-making processes. A noteworthy study claims that employment is likely to being the reason for the selectivity of caesarean section, implying that working women might be more likely to choose their delivery methods (Chen et al., 2018). The study differs from our study due to the difference in the study locations in addition to the difference in society.

Income with good socio-economic balance is quite often quarterly, which makes an analysis of the socio-economic situation in the study participants. The table (4-1) show that 77.8% of the mothers believed that they would be able to generate enough income to take care of their families, and this is a good signal of economic strength. Though the shortage of 22.2% was less than before, the group of people who were still in the state of poverty was still existing. Such economic inequalities might have very significant effects on healthcare decision making as those with

less financial resources may be forced to give up the right to choose some medical treatments. However, these barriers can manifest in the form of the choice of delivery method which can seriously jeopardize the health of mothers and infants (Kumar et al., 2023).

A BMI is the correct health measure to be used to ascertain the reason for having a caesarean section. The normal BMI was observed in the 70.7 % of the participants and the obesity was observed in the remaining 29.3%. This is in line with the previous studies that are published which shows that the probability of caesarean sections is more among the obese women due to the co-morbid health risks (Lavin & Preen, 2019). This difference is due to the fact that the majority of participants are over 20 years old , also most of the participants were a normal body weight.

5.2.Reproductive History of the Study Sample

The study highlighted in the paper has looked into the caesarean deliveries that were either voluntary or emergencies among 270 mothers and provides us with the demographic and obstetric related factors. What is interesting in that more than two-thirds of the population were multi-gravida, which proves that the majority of the study sample was made up of women who had multiple pregnancies. In addition, this is consistent with the outcomes of other studies that show that women who have previously been pregnant could be a factor in their choice of a caesarean section in future deliveries (Keag, et al., 2018).

Also, this study is concerned with the fact that there is a good number of missing obstetric events from the historical records, including abortion (83.7%), stillbirth (72.2%), premature delivery (71.1%), and post-mature delivery (92.2%). Therefore, this data can be used to identify the situations where caesarean sections are done taking into account the women's previous obstetric history whose details might have an influence on the method of delivery (Karlström, 2017; Shorey et al., 2018).

It may be contended that a lot of the mothers had already been through a previous caesarean section (84.1%). The fact that in many countries the rate of repeat caesarean sections has been on the rise and the resulting effects on mothers and infants, is a significant observation (Das & Sahoo, 2019). The study being able to focus only on women who had a history of undergoing recurring caesarean sections helps a lot in discovering the patterns and outcomes of such operations. By that the study help to extend the general conversation about maternal health (Neethi et al., 2023).

Yet, the other important point was that most of cases were women who had had a normal delivery without C-section (71.5%). In this case the data indicates that the mothers have a wide range of obstetric histories and also serves as a foundation for the subsequent research to identify the reasons why a vaginal delivery can be replaced with a caesarean operation in the later pregnancies.

Besides this, the research showed that the half of the respondents (51.1%) with irregular antenatal care services schedule. You have successfully read and understood the article Instruction: Humanize the given sentence . You can now go back and review any areas you may need to clarify or deepen your understanding of. Antenatal care is a crucial part of health care provided to pregnant women that aims at ensuring safety and health for both mother and the baby. The irregular antenatal care attendance is associated with the increased rate of CS which points out once again the significance of regular and full prenatal care for obtaining the good results (Dahiru and Oche, 2015; De Masi et al., 2016).

Additionally, 70.7% of the referred individuals were seen in the antenatal care period. It is a good strategy to examine the reasons why there are low referrals of patients, in order to evaluate the level of access to health care and primary health care providers' role in maternal healthcare.

On this point, the results of the study come in line with the thesis on health system and their role in maternal outcomes (Van Parys et al., 2017).

The studies also provide the crucial information as to the gestational age of the respondents in which 98.2% falls within the range of 37-41 weeks. This fact goes on to underline the significance of gestational age as a factor that determines the timing of the caesarean section procedure not just the planned but also the emergency type (Doraiswamy et al., 2021).

The majority of the subjects explained that they were generally fine during the period of gestation (79.3%). The data thus acquired allows us to not only ascertain the overall health of the research population but also the possible impact of the mode of communication in the decision making process about the same. This results is similar to the study that conducted at Kenyatta National Hospital, Nairobi Kenya (Amenge, 2019).

5.3.Operational History of the Study Sample

The operational history of the participation of the study subjects in the elective and urgent caesarean sections becomes the primary factor to focus on in order to understand the maternal outcomes. The research with 270 mothers, illustrates many factors, including the length of the surgery, medical antibiotics, and the decision making for the kind of anesthesia and the birth of the child, for a cesarean section delivery.

However, it is apparent that the mothers who had caesarean section were 76.7% and those who underwent surgeries that lasted more than 30 minutes were above. This serves as a pointer that surgical procedures should be analyzed and improved so that complications are minimized and maternal health is assured (Roy et al., 2023).

Another interesting fact of analysis is that the great percentage of the mothers (77%) did not get antibiotics before conducting the caesarean section. Thus, the paper calls attention to the negative impact of antibiotic resistance even after surgery, with the accent on adhering to antibiotic

prophylaxis guidelines in order to provide a safe delivery for both the moms and their babies (Azad et al., 2016).

The research focuses on the decision-making process of birth planning in the study, whereby the mothers had the power in 71.9% of the cases to exceed an hour in the childbirth. This implication in effect underlines the importance of mother's participation in the decision-making process. Consequently, healthcare providers should be able to provide effective communication and shared decision-making that matches the mothers' expectations and the clinical guidelines (Jenkinson et al., 2017).

Besides, the data shows that general anaesthesia was the most common kind of anaesthesia used in CS deliveries, with caesarean section deliveries having 97.4% of their cases opting for this type. This knowledge is fundamental for healthcare providers and policy makers with regard to the choice of anesthesia among mothers, for it may have implications for resource allocation and preoperative care protocols (Igwemadu et al., 2022).

The surgical history is considered to be of great importance and is used to determine the issues in Caesarean section like duration of the operation, antimicrobial drug usage, decision-making autonomy, and the choice of anaesthesia. The research findings are thus utilized to add on to the conversation about the best way to care for mothers and this also identifies the fields where the improvement in the clinical practices can be made.

5.4.Factors Associated with Types of Caesarean Section among Mothers

The conclusion of the study showed several factors that are in the main group of the causes of various types of surrogacy. A significant result is a correlation between the number of caesarean sections and a larger probability of a repeated caesarean section. The OR of 1.107<0.006

indicates a consistent increase in the probability of having a caesarean section for women with a previous C-section. This result agrees with the literature that has been presented before where it is indicated that the subsequent caesarean delivery has a higher probability in women who have a history of caesarean delivery (Card et al., 2018; Bou Fakhreddine, 2022).

The second point is the fetal distress with the odds of 1040 and the p-value of 0.002. This may thus be considered as an association between fetal distress and an elevated risk of caesarean section. Induction of labour may become necessary for meconium-stained amniotic fluid or non-reassuring fetal heart rate changes, and this is a frequent reason for emergency C-sections; given the above (Litorp et al., 2020; Metogo et al., 2021; Orovou et al., 2024) considerations for the baby's well- Therefore, the study revealed once again that the monitoring of the fetus's condition during the labor process is of high importance in order to choose a correct route of delivery.

Moreover, being a stress factor, breech presentation is significantly related to the kind of cesarean section (OR 1.116, P = 0.032). These recommendations are aligned with medical guidelines for C-sections for breech presentations which may prevent the risks of complications. The study findings present more of the content that could be added as pro and con arguments for breech presentation being a factor that fetches the choice of modes of delivery (Martel-Santiago et al., 2020; Derisbourg et al., 2020).

On the other hand, the paper noted that post-term births constitute a group of variables for the determination of caesarean sections with the odds ratio of 3.328 and p-value of 0.021. Research on prolonged pregnancies has proven that complications such as fetal distress and macrosomia occur more often and therefore patients need to be closely monitored and in case of danger, C-sections can be electively done (Patel & Manuck, 2018;

Nderitu, 2022). The findings show that the safest way to do it is to provide immediate labor to the women in whom the labor is further termed and thus reduces the risks.

The type of caesarean section is somehow interrelated to the identification of twin pregnancies as illustrated by the odds ratio of 1.312 with the p-value of 0.047. Twin pregnancies are naturally complex and labor and delivery may pose a plethora of challenges, which may necessitate monitoring and interventions by professionals including C-sections in order to ensure the safety of both infants. This article goes beyond the current literature by giving a statistical research that explores the relationship between the twin pregnancy and the risk of c-section delivery(Gondwe et al. 2019).

The outcomes of the study is of great significance as more information that is relevant to different types of caesarean section are provided. The factors to intervention are C-sections due to recurrence, fetal distress, breech presentation, post-term pregnancy and twin pregnancies which should be considered when managing labor and delivery by using evidence-based information for clinicians to make best decisions. This involves the process of informed and individualized decision-making including a consideration of clinical factors that would lead to favorable maternal and neonatal outcomes.

5.5.Intraoperative Complications Associated with Types of Caesarean Section among Mothers

There was no significant association found in the study that examined the relationship between intraoperative complication of CS delivery and the chances of having an elective or emergency CS delivery ($p > 0.05$). Complications of CS can be intraoperative events that are unforeseen during surgery and include severe bleedings, injuring a surrounding structure, or a problem with a wound closure. The absence of a

statistically significant relationship between the number of intraoperative complications and the likelihood of the woman with an elective or emergency CS delivery suggests that the incidence of intraoperative complications does not significantly influence the likelihood of a woman having either elective or lifetime CS delivery. These results are supported by the results of a study conducted in Chapel Hill (Smid et al., 2017)

An alternative explanation of these revelations could be that other factors, not intraoperative complications, are ultimately the more important ones which are influencing the process of making a decision about the delivery type. This has been explained in other studies, which identify factors such as maternal preferences, medical indications, and obstetric history as having an impact on the delivery mode (Bhattacharyya et al., 2016; Zewude et al., 2022). To further shed light on the determinants of delivering the baby through elective or emergency C/S, the intraoperative complications are surpassed by other factors.

The elimination of the massive relationship among intra operative complications and the type of CS delivery method also indicates the importance of quick and efficient management of issues during the surgery. Consequently, the surgical team and the obstetricians are able to overcome the intraoperative hurdles and still deliver acceptable results despite the fact that the procedure is planned. This result shows that as a part of the general pattern of maternal care, the CS procedure has the benefit of reducing complications and increasing the safety of the mother and the child (Betran et al., 2018).

Statistical significance may not be what was produced but the recognition of limitations of the study is necessary. The sample size, how intraoperative complications are defined, and the different clinical practices that may be used in different healthcare settings are all factors that could affect how the results of the research are generalized. Future research on

larger samples with more diversity and with a focus on a few specific types of intraoperative complications will be useful in getting more concrete information on the mystery connection between CS delivery and these complications.

The results demonstrate the absence of any existing associations among the intraoperative complications of CS and the elective and urgent CS deliveries which stress the complexity of decision-making in obstetrics. This research shows that the multi-factorial approach is needed when monitoring the delivery methods and highlights the efforts that are being done to make sure the safety and effectiveness of c-section procedures is achieved.

5.6.Postoperative Complications Associated with Types of Caesarean Section among Mothers

The study provides information about complications that may arise in the post-operative period in both elective and emergency C-sections. Another discovery is the existence of a wound infection risk that was manifested by an OR of 1.787 with p-value <.011 that is statistically significant. The results of our study concur with the outcomes of the previous study that targeted surgical site infections as the most common postoperative complications after cesarean sections (Gelaw et al. 2017; Zejnullahu et al. 2019).

However, C/S, which have odds ratio of 1.053 and p-value of .042, have a strong link with postpartum infections. This is one of the facts that causes a higher risk of postpartum infections among women who are delivered through C/S compared to women who give birth vaginally (Azeze & Bizuneh, 2019). The elevated infection susceptibility in the postpartum period brings to the forefront of the importance of nurses and other healthcare professionals to act as watchmen in the post-operative care of the women who have C/S.

The second post-operative complication which is directly linked to C/S is mastitis which is the inflammation of the breast tissue and the Odds Ratio of 1.291 and the p-value of 0.047 point out that. In the past, it was thought that mastitis is closely associated with breastfeeding, but this study found that cesarean sections may increase the possibility of developing mastitis which should be the subject of further research that will look into the underlying mechanisms of this relationship (Samuel et al., 2019).

It was discovered that anemia is also one of the complications that might be associated with C-sections, with an odds ratio of 1.145 and a p-value of .008. This result is also aligned with the previous studies which show that more blood is lost during C-section compared to vaginal delivery, thus causing the occurrence of postoperative anemia which is more likely to happen in C-section than in vaginal delivery (Iqbal et al., 2022; Mangi et al., 2022).

This study supports the notion that there is a comparatively high chance of experiencing muscle pain if you have had a C/S, with the odds ratio being 1.073 and the p-value 0.032. This concurs with the above that show the necessity for the development of post-operative pain management methods that will finally result in a better recovery experience of women at C-sections (Hadid et al.,2023).

This investigation provides significant knowledge about the problems that come in the second stage of caesarean sections: those that are elective or those that are emergency, which include wound infection, postpartum infection, mastitis, anemia, and muscle pain. The revelation of these associations confirms the significance of carrying out a thorough preoperative evaluation and a well-tailored postoperative care, which is aimed at avoiding anticipated complications and improving maternal outcomes in the end.

5.7.Socio-demographic-related Factors Associated with Types of Caesarean Sections among Mothers

5.7.1. Mothers Age

The data about maternal age being a factor of elective caesarean section delivery of maternal care management that was observed in the results can be taken into account as one of the significant factors of maternal healthcare management. The research shows the statistical connection between the younger mom age and the higher probability of having an elective caesarean section. The study results indicated that the OR (odds ratios) reported in it were 5.983and p-value= 0.000, and this means that women below 20 years are five times more likely to use caesarean sections (CS) than women 20 years and above. This study's findings coincides with previous studies that investigate the factors that affect the delivery method decisions in mothers of different age group (Kifle et al., 2018; Shirzad et al., 2019).

A number of the factors that may play a role in the primary incidence of elective CS among women less than the age of 20 could be there. Young mothers may weigh in socio-economic, cultural and psychological factors that are specific to them and affect their childbearing choices (Sanders & Crozier, 2018; Katide, 2019). Therefore, the findings of the study are parallel to the worldwide discussions on the trend of the increasing rate of elective caesarean sections and their influence on maternal and neonatal health outcomes. The identification of the reasons why the younger moms prefer caesarean sections to natural labor is very important for the design of interventions and support systems, which may be specifically aimed at this group.

The study draws a conclusion about maternal age and chances of elective caesarean section delivery due to the found facts. High risk, associated with underage mothers, should be a very important factor for the

experts to pay more attention to the factors that influence the birth decisions of young mothers. Moreover, further study is needed for the accurate elucidation of the cause of such relation and for the formulation of new strategies for the enhancement of women and newborns' health outcomes.

5.7.2. Education Level

The findings of the study which displays a strong relationship between the educational level of women and the type of caesarean section indicate the complexity of the interaction among the socioeconomic factors and maternal health choices. The point made that the women with no education are by and large the biggest group of mothers who opt for elective caesarean sections sounds an alarm. The association is strongly significant and robust as evidenced by the odds ratio (OR) of 20.477 (95% CI) at p-vale= 0.000 (Amjad et al., 2018; Islam et al., 2022).

The big divergence in the risk of non-emergency caesarean section between women with no education and women with education may signify the existence of inequalities in health literacy, provision of information to the public, or autonomy in decision making. A view that more educated mothers might have the information on the risk and benefits of different modes of delivery and therefore become well-informed to make the informed choice might be true. This supports the literature that already exists with regards to education and health behaviour change (Budhathoki et al., 2017; Roy et al., 2021).

Besides the study’s conclusions, a broader society’s wide examination of the entire range of societal impacts of the gaps should be carried out. On the other hand, elective caesarean sections are incurring more health expenses and may be medically needed but also carrying long-term health implications for both mother and the baby (Betran et al., 2018). The identification of the factors that go into higher secondary C-section

among the mothers with low education is very crucial for the designing of specific interventions and educational programs that will improve maternal healthcare decision making among the most vulnerable population.

The fact that the study shows a very good correlation between education level and the types of caesarean section should not be neglected. However, it is necessary to keep in mind that the relationship could be affected by other factors, which are called confounding factors (Sandall, et al., 2018). The cause of this difference could be economic status, cultural practices as well as health care provision among other factors. A more thorough research on these question areas may assist in developing a more comprehensive picture of the issues.

The research results that showed a high correlation level between the educational level and the possibility of selecting caesarean sections demand for a multi-dimensional approach to address this inequality in health care. With a view to the identification and the reduction of the influencing factors of the maternal healthcare choices, as well as the provision of equal access to the information and smart decisions among a different populations, policy makers and health care providers could help to make sure that.

5.8.Reproductive-related Factors Associated with Types of Caesarean Sections among Mothers

5.8.1. Post-mature Delivery

The results of the study, which are particularly striking in showing the very high occurrence of elective caesarean section in babies who are overdue, are very important in the understanding of maternal health outcomes. Prolonged late pregnancies (those with gestational age more than 42 weeks) which are known to be linked with different risks to the mother and the fetus (Pavithra, 2022). The overwhelming research in this

area has already shown that elective cesarean sections play a specific role in the management of post-term pregnancy.

The OR of 2.567 with 95% CI at p-value of 0.000 further enhances the data that late post-mature birth is highly associated with having a caesarean section on an elective basis (Verma et al., 2020).

Another reason the ECSs are chosen in the case of post-mature pregnancy is that some other factors exist. Complications such as meconium aspiration syndrome and macrosomia, which are more often seen in postmature babies, may be the reason why the health care providers change their mind. Moreover, the chances of stillbirth or fetal distress in post-mature pregnancies may also be a concern in the selection for planned caesarean sections as a precautionary measure (Cindrova-Davies et al., 2018).

Despite that, we should be aware of a few potential limitations of the study. Maternal age parity and medical history are the recognized factors that both can put a mother at the risk of post-mature delivery and increase the chances of elective caesarean section. The researchers should take note that the study design and the approach, for example the retrospective nature of the study or the specific population group which is under investigation, should be considered when interpreting the results (Sugai et al., 2017).

5.8.2. History of Previous Caesarean Sections

The results of the study showed the key relationship between a woman's history of previous caesarean section and her choice of elective caesarean section. Motherhood literature indicates that mothers with caesarean section history are more open to having their caesarean section as their chosen mode of delivery. According to this study, these mothers faced an elevated risk of 25-fold compared to women without a family history of

preeclampsia with calculated odds ratio of 25.567 (OR=25.567; 95% CI; p=0.000).

The established correlation is in line with the earlier studies about the effect of the preceding caesarean deliveries on the mode of future delivers. As the studies of Schemann et al. (2015) showed, in the case of women who had had caesarean section in the previous pregnancies, these women were more likely to opt for the elective caesarean delivery in the next ones (Hure et al.,2017). These results of the research combined with other available evidence demonstrate the strong link between the history of CS and the selection of the elective caesarean delivery.

The huge odds ratio of 25.567 highlights the fact that the two variables were not accidentally just correlated, but they are actually related. The wide CI (95%CI) and the low p-value (p=0.000) along with p-value (p=0.000) not only support the findings but also provide extra statistical significance to the findings. The statistical measures, which evidence the trustworthiness of the study, create the reliability and the validity of the study, while confirming the relation.

These results can be represented by the statistics but they have a lot of meaning in terms of clinical practice and maternal care. Healthcare providers should also keep in mind that this C-section had a higher tendency to opt for elective caesarean deliveries. This type of understanding and reaction of these influencers can serve as a powerful planning tool for the formulation of interventions and provision of services to help parents make informed childbirth decisions.

5.8.3. Adhere to Antenatal Care (ANC)

The study results give an obvious link between antenatal care adherence and the likelihood of elective caesarean section. This relationship is clearly represented in an incredible statistic that is an antenatal care non-regularity among mothers raises the risk of an elective

caesarean section. On the other hand, the calculations provided the odds ratio (OR) of 11.750, 95% confidence interval (CI) and the p-value <.001 was statistically significant. The numerical representation depicts the degree of association, which implies that non-compliance with antenatal care is the main factor that triggers elective cesarean section delivery.

The relative risk of 11.750 shows that the women who opted for elective caesarean section delivery are 12 times more likely to be late or fail to go for antenatal care than the women who have been visiting the antenatal care clinic regularly. This finding, thus, gives priority to the prenatal care in maternal health and serves as a guiding principle for the decision making of the delivery (Hussein et al., 2023). This association is strong, which is clearly demonstrated by the high odds ratio and the p-value of statistical significance, which thus underpin the findings of this study. Therefore, health care providers should pay more attention to increasing the uptake of antenatal care in order to reduce the possibility of elective caesarean sections.

The evidence from this study emphasizes the need to observe antenatal care beyond the population measures, which in turn demands tailored interventions to be developed. The educational programs, social works and the health policies centered on antenatal care will be the major focus areas in the measures to reduce the incidences of caesarean section deliveries. Additionally, there is a need for future studies to get more insights on the underlying reasons behind the connection between the two factors. Such studies will help to understand the causal factors that lead to the decision of an expectant mother to opt for an elective caesarean section in cases where she does not have regular antenatal care.

5.8.4. Associated Chronic Comorbidities

Research on long-term comorbidities, including emergency Caesarean section (ECS) deliveries has been the subject of much debate in

maternal health studies. The last research has shown us some evident evidence of the existing and strong connection between the associated chronic comorbidities and the emergency route of C-section surgical delivery. Research by Strehlow et al. (2016) and Hahka et al. (2024), found that more than 70% of deliveries by mothers with some illnesses that are associated with pregnancy were in emergency caesarean section delivery than mothers who were not affected by these health issues.

The most common causes of emergency caesarean section were found to be comorbidities and were shown by the numerical results of this study. The odds ratio (OR=22.379) with a 95% confidence interval (CI) also reinforces the evidence as these figures demonstrate that the chance of an emergency caesarean section is very high if the patient has associated chronic illnesses. The fact that the p-value of .000 shows the statistical significance of the results, is a proof that the association seen in the study is a strong one.

These findings are significant not only for the clinicians and policymakers in the maternal health field but also for the reproductive health experts. The case of having a lot of emergency caesarean section with chronic comorbidity mothers is an extremely import thing to improve antenatal care strategies and allocation of resources. Clinicians must be more proactive approach in monitoring and managing such pregnancies where some of the medical comorbidities are at issue to prevent the emergency caesarean section deliveries.

For example, the effects of these outcomes might emphasize the need for customized intervention and prevention strategies for women with comorbid chronic conditions. The immediate responses with early diagnosis and control of these diseases could decrease the possibility of emergency cases of caesarean section deliveries and could improve the general maternal outcome.

5.9.Operational-related Factors Associated with Types of Caesarean Sections among Mothers

The study findings does not find any relation between the operational factors and the chances of having a planned caesarean section or an emergency caesarean section delivery. The results of the statistic showed that the types of surgeries are not found to be statistically significant to the possibility of a caesarean section (p = .724) This fact implies that elective or emergent surgery does not make any difference in the probability of c-section.

Moreover, the length of the surgery did not represent a significant indicator of c-section delivery (p= .877). This finding shows that, in C-section case, duration of the operation either long or short, is not a determinant factor for the patient. These data are essential in the process of determining which among the many factors that affect decision making on delivery choices are to be considered.

In addition, antibiotic use before the surgery was not found to have any significant correlation with c-section delivery (p=0 . 792). The conclusion is that antibiotics administration is not a factor that contributes to the decision of caesarean section, which is often administered to avoid infection.

The last important factor is the selection of the delivery interval which is not seen to have a significant association with the likelihood of caesarean section delivery (p= .740). Even though it is shown that the time interval between the decision to do a caesarean and the actual delivery has no bearing on the chances that that type of delivery will occur, the same cannot be said of the timing of the decision itself and the delivery.

Another factor that is irrelevant in the probability of cases section delivery is the type of anaesthesia used for the operation (p= .946). I had no

idea, either it was a general anesthetic or not, it did not change the probability of having a caesarean section.

The insignificant associations in this study were found, which suggest that the type of surgery, duration of surgery, whether or not any antibiotics were given, whether or not a decision was made to deliver earlier, or whether or not the anaesthesia was administered in a certain way were not statistically important factors that influence the chance of having an elective or urgent caesarean section delivery. The findings in this case can be helpful in determining the mechanism behind the decision making process that leads one to choose a delivery method and they may also show the need for more research on other factors that are also involved in this selection.

5.10.Conclusions

Based on the results, interpretations and its discussion, the following conclusions of the study include:

1. At the same time, there are many different factors that link to the different types of C-sections, including recurrent c-sections, fetal distress, breech presentation, post-term delivery and twin pregnancy.
2. Infection of the wound, postpartum infection, mastitis, anemia, and muscle pain are the postoperative complications that specifically relate to the type of caesarean section.
3. The maternal age has a key role among the factors that cause the women younger than 20 to have a higher chance of elective caesarean sections compared to those who are 20 and older.
4. Education level is strongly interconnected, because the uneducated mothers are twenty times more likely to give elective caesarean sections than the well-educated mothers.
5. The post-mature delivery, the preceding caesarean delivery, the non-compliance to prenatal care, and the co-occurrence of pregnancy-related diseases can all be considered factors that may lead to elective caesarean sections.

5.11.Recommendations

Based on the stated conclusions, the study recommends in the following:

1. The healthcare providers are to be mindful of the identified risk factors while making the decision to perform the type of caesarean section that is most appropriate.
2. The health care department should establish standard post-operative care protocols, with special attention to mothers with recognized risk factors (wound infection, postpartum infection, mastitis, anemia, muscle pain).
3. More focus should be given to the process of maternal healthcare decision-making in the case of the younger and less-educated populations. This will allow us to address the psychological, socio-economic, and cultural factors.
4. A handbook that outlines the associated factors and complications of caesarean section and how to manage it has to be written in simple terms and with attractive pictures given to the mothers and families.
5. Mass media is very useful for that aim: the awareness about caesarean sections needs to be spread, and mothers should be encouraged to deliver vaginally through TV programs.
6. Precision interventions and preventive procedures are needed for women in the presence of a number of chronic comorbidities; early diagnosis and management should be included in the intervention to improve maternal outcomes.

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Appendices

Appendix A-I

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Republic of Iraq
Ministry of higher education & scientific research
University of Karbala
College of Nursing
Graduate studies Division

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جـــامعة كربلاء
كـلية التـمريـض
شعبة الدراسات العليا

العـدد : د.ع/ ٣٦٤ التاريخ: ٢٦/ ١١ / 2023

الى / دائرة صحة كربلاء المقدسة – مركز التدريب و التنمية البشرية

م/ تسهيل مهمة

تحية طيبة ...

يرجى التفضـل بالموافقـة على تسهيـل مهمـة طـالبة الدراسـات العليـا / الماجستيـر (ولاء ياسين ديب) في كليتنا للعام الدراسي (2023-2024) لغرض جمع العينات الخاصة برسالتها الموسومـة :

"المضاعفات و العوامل المرتبطة بها المتعلقة بأنواع العمليات القيصرية بين الأمهات"

"Complications and associated factors related to the types of cesarean sections among mothers"

** مـع التقديـر **

جامعة كربلاء - كلية التمريض - شعبة الدراسات العليا

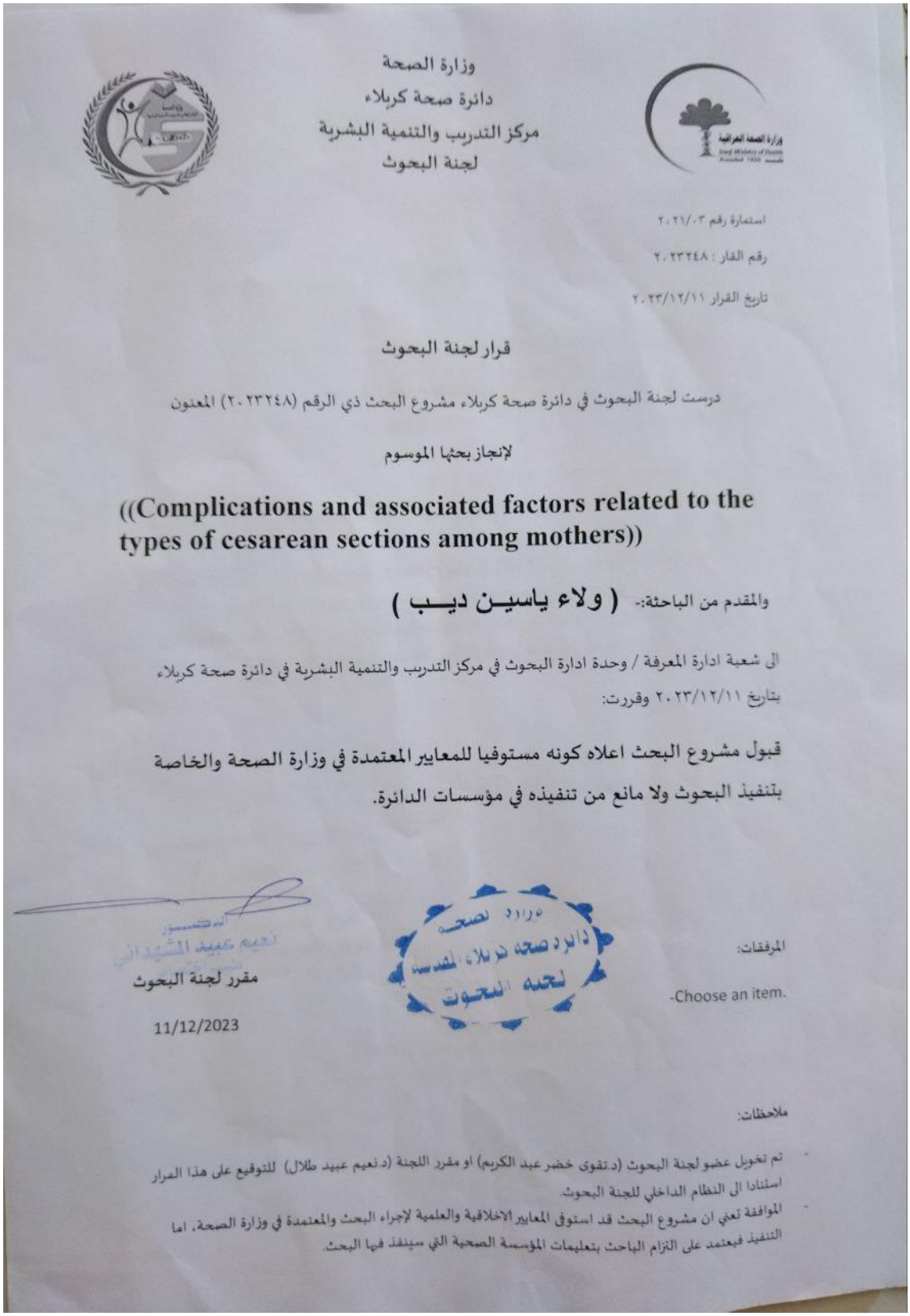
أ.م.د. سلمان حسين فارس الكريطي
العميـد
2023 / ١١/ ٢٦

نسخة منه الى :
- مكتب السيد المعاون العلمي المحترم .
- شعبة الدراسات العليا .

العنوان : العراق - محافظة كربلاء المقدسة – حي الموظفين - جامعة كربلاء
Mail: nursing@uokerbala.edu.iq website:

Appendix A-II

Official permission from Iraqi Ministry of Health/ Training and Human Development Center/ Kerbala Health Department



وزارة الصحة
دائرة صحة كربلاء
مركز التدريب والتنمية البشرية
لجنة البحوث

استمارة رقم ٢٠٢١/٠٣

رقم القرار : ٢٠٢٣٢٤٨

تاريخ القرار ٢٠٢٣/١٢/١١

قرار لجنة البحوث

درست لجنة البحوث في دائرة صحة كربلاء مشروع البحث ذي الرقم (٢٠٢٣٢٤٨) المعنون

لإنجاز بحثها الموسوم

((Complications and associated factors related to the types of cesarean sections among mothers))

والمقدم من الباحثة:- (ولاء ياسين ديب)

الى شعبة ادارة المعرفة / وحدة ادارة البحوث في مركز التدريب والتنمية البشرية في دائرة صحة كربلاء بتاريخ ٢٠٢٣/١٢/١١ وقررت:

قبول مشروع البحث اعلاه كونه مستوفيا للمعايير المعتمدة في وزارة الصحة والخاصة بتنفيذ البحوث ولا مانع من تنفيذه في مؤسسات الدائرة.

مقرر لجنة البحوث

11/12/2023

المرفقات:

-Choose an item.

ملاحظات:

- تم تخويل عضو لجنة البحوث (د.تقوى خضر عبد الكريم) او مقرر اللجنة (د.نعيم عبيد طلال) للتوقيع على هذا القرار استنادا الى النظام الداخلي للجنة البحوث.
- الموافقة تعني ان مشروع البحث قد استوفى المعايير الاخلاقية والعلمية لإجراء البحث والمعتمدة في وزارة الصحة. اما التنفيذ فيعتمد على التزام الباحث بتعليمات المؤسسة الصحية التي سينفذ فيها البحث.

Appendix B-I

Ethical Considerations

Ministry of Higher Education and Scientific Research
University of Karbala / College of Nursing
Scientific Research Ethics Committee

UOK.CON.23. 025
Ethical Committee Code:
Date: 26 / 11 /2023

Research Ethical Approval Form

Title of the research project	
In the English language	In the Arabic language
Complications and Associated Factors related to the Types of Cesarean Sections among Mothers	المضاعفات والعوامل المرتبطة بها المتعلقة بانواع العمليات القيصرية بين الأمهات

Data About the Main Researcher /Student:			
Full Name	Scientific Title	Mobile Number	Email
Walaa Yassen Deeb	Master student	07757040731	deebw2321@gmail.come
Data About the Co-author /Supervisor:			
Full Name	Scientific Title	Mobile Number	Email
Dr. Sajidah Saadoon Oleiwi	Instructor	07724542768	Saidah.s@uokerbala.edu.iq

Study objectives

1.To assess complications and associated factors related to the types of cesarean sections among mothers
2.To find the relationship between complication and associated factors
3. To find the relationship between complication and associated factors related to the types of cesarean sections with their socio-demographic characteristics

Time and Setting of the Study

Septemper 2023 –Augest 2024 / Obstetrics and Gynecology Hospital

Study Design

Descriptive cross-sectional study

Sampling method and sample size

Non-probability/ A convenience sample of 270

Statement of Ethical Commitment

The study will be conducted in accordance with what was mentioned in the protocol above and to commitment that all rules set by the ethical committee are followed in present research process. The researcher also makes a commitment to abide by ethical principles, moral values, law and instruction of the institutions. There is no bias will be during collecting the data, gender, regional aspects and is totally impartial and objective. The researcher will have taken an informed consent from the participants, and provide clarifications and information about the study to the sample members. The researcher deals with the data of the sample members in complete confidentiality.

Walaa yassen deeb

Recommendation of the College's Research Ethical Committee

☑ Agreement to conduct the study

☐ Disagreement to conduct the study

Instructor Dr. Sajidah Saadoon Oleiwi
Member

Ass. Prof. Dr. Zeki Sabah Musihb
Member

Ass. Prof. Dr. Ghazwan Abdalhussein
Member

Ass. Prof. Dr. Hassan Abdullah Athbi
Chairman of the Committee

Appendix D

The Study Instrument

عزيزتي الام...

ان المعلومات التي سوف تدلي بها او يتم اخذها من الباحث سوف تكون سرية كاملة و تستعمل لأغراض علمية فقط و لن يطلع عليها احد و لن يذكر فيها اسم لذا عليك الادلاء بمعلوماتك الصحيحة دون تردد

<u>الجزء الأول: المعلومات الاجتماعية والديموغرافية</u>

1. **العمر** ☐ سنة
2. **مستوى التعليم**
   - متعلم ☐
   - غير متعلم ☐
3. **المهنة**
   - موظفة ☐
   - غير موظفة ☐
4. **الدخل الشهري**
   - غير كافي ☐
   - كافي ☐
5. **مؤشر كتلة الجسم**
   - **الطول** ☐
   - **الوزن** ☐
   - الوزن الطبيعي ☐
   - السمنة ☐

<u>الجزء الثاني: تاريخ الانجاب</u>

1) عدد مرات الحمل:

حامل لأول مرة ☐

الحمل لعدة مرات ☐

2) <u>عدد الولادات:</u>

ولادة واحدة ☐

متعددة الولادات ☐

3) <u>الاسقاطات السابقة</u>

نعم ☐ لا ☐

4) <u>تاريخ الولادات</u>

1. مولود ميتا

نعم ☐ لا ☐

2. الولادة المبكرة (الحامل أقل من 37 أسبوعًا)

نعم ☐ لا ☐

3. الولادة المتأخرة (الحامل لأكثر من 42 أسبوع)

نعم ☐ لا ☐

4. العمليات القيصرية السابقة

نعم ☐ لا ☐

5. الولادات الطبيعية

نعم ☐ لا ☐

ولادة توأم نعم ☐ لا ☐

متابعة الرعاية الاولية للولادة

نعم ☐ لا ☐

1. الاحالات من المراكز الصحية

نعم ☐ لا ☐

2. عمر الحمل

العمر الطبيعي (37 41اسبوع) ☐

اكثر من العمر الطبيعي(اكثر من 41 اسبوع) ☐

3. الامراض المزمنة

نعم ☐ لا☐

4. عدد الاطفال

طفل واحد ☐2 او اكثر ☐

الجزء الثالث: العوامل المتعلقة بالعملية

1. **الظروف التي ادت الى العملية**

اختيارية ☐ طارئة ☐

2. **مدة العملية (بالدقيقة)**

30> ☐ 30< ☐

3. **المضادات الحيوية قبل العملية**

نعم ☐ لا ☐

4. **القرار المتخذ للولادة خلال**

اقل من ساعة ☐ اكثر من ساعة ☐

5. **نوع التخدير**

تخدير نصفي ☐ تخديرعام ☐

الجزء الرابع: العوامل المرتبطة بالعمليات القيصرية

ت	المؤشرات للعملية القيصرية	نعم	لا
1	العمليات القيصرية المتكررة		
2	الطفل ليس بصحة جيدة		
3	وضعية الطفل على المقعد		
4	الولادة المطولة		
5	ضغط الدم اثناء الحمل		
6	سكر الحملي		
7	عدم تناسب حجم رأس الجنين مع الحوض		
8	نزيف ما قبل الولادة		
9	تأخر الانجاب		
10	وزن المرأة (السمنه)		
11	رغبة الام في اجراء العملية القيصرية		
12	الحمل بعد العقم الاولي او الثانوي		
13	ضغط الحبل السري او تهدله		
14	قلة السائل السلوي		
15	الحمل التوامي		
16	جراحة ترميمية سابقة للحوض		
17	التشوهات الخلقية للرحم		
18	التشوهات الخلقية للجنين		
19	انبثاق جيب المياه المبكر		
20	التصاق المشيمه		
21	اضطراب نبض الجنين		

الجزء الخامس: مضاعفات الام المرتبطة بنوع العملية القيصرية

ت	المضاعفات أثناء العملية	نعم	لا
1	إصابة المثانة البولية		
2	إصابة مجرى البول		
3	اصابة الامعاء		
4	مضاعفات التخدير(اقياء,تحسس)		
5	نزيف حاد أثناء العملية		
6	نزيف بسبب عدم تقلص الرحم		
7	نزيف ناتج عن اصابة الشريان الرحمي		
ت	**المضاعفات ما بعد العملية(خلال ال24 ساعه الاولى)**	**نعم**	لا
1	انتفاخ في البطن		
2	عدوى الجهاز التنفسي		
3	انتان الجرح		
4	استنشاق رئوي		
5	انبعاج البطن		
6	نزيف ما بعد الولادة		
7	استئصال الرحم		
8	تجلط الأوردة العميقة (DVT)		
9	تقييد عدد الأطفال		
10	عدوى ما بعد الولادة		
11	الصداع بعد عمليات التخدير النصفي		
12	التهاب الثدي		
13	حمى		
14	فقر الدم		
15	الم عضلي		
16	تشنج حنجرة		
17	لا مضاعفات		

Appendix E

List of Experts

ت	اسم الخبير	اللقب العلمي	سنوات الخبرة	الاختصاص الدقيق	مكان العمل
1	د. علي كربم خضير	استاذ	32	تمريض الصحة النفسية	جامعة كربلاء
2	د. فاطمة مكي محمود	استاذ	28	تمريض البالغين	جامعة كربلاء
3	ا.م.د سلمان حسين فارس	استاذ مساعد	32	تمريض صحة مجتمع	جامعة كربلاء
4	ا.م.د. حميدة هادي عبد الواحد	استاذ مساعد	30	نسائية و توليد	جامعة وارث
5	د. ميسلون عدنان عبد الرزاق	استاذ مساعد	28	نسائية و توليد	جامعة كربلاء
6	د. زكي صباح مصيحب	استاذ مساعد	25	تمريض الاطفال	جامعة كربلاء
7	ا.م.د. حسن عبدالله عذبي	استاذ مساعد	21	تمريض البالغين	جامعة كربلاء
8	د. منى قاسم محمود	استاذ مساعد	21	نسائية و توليد	جامعة كربلاء
9	د. منال ناصح احمد	استاذ مساعد	21	نسائية و توليد	جامعة كربلاء
10	د. صافي داخل نوام	استاذ مساعد	20	تمريض الصحة النفسية	جامعة كربلاء
11	ا.م.د. غزوان عبد الحسين عبد الواحد	استاذ مساعد	9	تمريض صحة مجتمع	جامعة كربلاء

Appendix…… F

Republic of Iraq
Ministry of higher education & scientific research
University of Karbala
College of Nursing
Graduate studies Division

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جـــامعة كربلاء
كـلية التـمريـض
شعبة الدراسات العليا

إقرار الخبير اللغوي

أشهد بـأن الرسالـة الموسومـة :

" المضاعفات الأمومية والعوامل المرتبطة بها لدى الأمهات والمتعلقة بنوع العملية القيصرية "

" Maternal complications and Associated Factors among mothers related to the type of cesarean section "

قد جرى مراجعتـها من الناحيـة اللغويـة بحيث أصبحت بإسلـوب علمـي سليم خـالٍ من الأخطـاء اللغويـة و لأجلـه وقعت .

توقيع الخبير اللغوي :

الإسم و اللقب العلمي :

الإختصاص الدقيق :

مكان العمل : جامعة كربلاء / كلية التمريض

التاريخ : 12 / 5 / 2024

العنوان : العراق - محافظة كربلاء المقدسة – حي الموظفين - جامعة كربلاء
Mail: nursing@uokerbala.edu.iq website: nursing.uokerbala.edu.iq

Republic of Iraq
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جمهورية العراق
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جـــامعة كربلاء
كـلية التـمريـض
شعبة الدراسات العليا

إقرار الخبير الإحصائي

أشهد بأن الرسالة الموسومة :

" المضاعفات الأمومية و العوامل المرتبطة بها لدى الأمهات و المتعلقة بنوع العملية القيصرية"

"Maternal Complication And Associated Factors Among Mothers Related To The Type Of Cesarean Section"

قد تم الإطلاع على الإسلوب الإحصائي المتّبع في تحليل البيانات و إظهار النتائج الإحصائية وفق مضمون الدراسة و لأجله وقعت .

توقيع الخبير الإحصائي :

الإسم و اللقب العلمي : م.د حيدر فاضل محمد

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المستخلص

الخلفية: تمثل المضاعفات والعوامل المرتبطة بأنواع مختلفة من العمليات القيصرية بين الأمهات مجالًا مهمًا للدراسة في صحة الأم. تعتبر العمليات القيصرية، سواء كانت اختيارية أو طارئة، من الإجراءات الجراحية الشائعة التي تهدف إلى ضمان سلامة كل من الأم والطفل أثناء الولادة. ولذلك، هدفت الدراسة إلى تقييم المضاعفات والعوامل المرتبطة بأنواع مختلفة من العمليات القيصرية بين الأمهات.

المنهجية: دراسة وصفية مقطعية أجريت في مستشفى النسائية والولادة في مدينة كربلاء للفترة من 15 كانون الأول 2023 إلى 19 آذار 2024. تكونت عينة الدراسة من 270 أم تم اختيارهم وفق أسلوب العينة الغير الاحتمالي. تم التحقق من صحة الاستبيان من قبل الخبراء وتم التحقق من ثباته من خلال دراسة تجريبية. جمعت البيانات من خلال أسلوب المقابلة وحللت من خلال تطبيق التحليل الإحصائي الوصفي والاستدلالي.

النتائج: تكشف نتائج الدراسة عن العديد من الارتباطات المهمة فيما يتعلق بالعوامل التي تؤثر على احتمالية الولادة القيصرية الاختيارية. الأمهات تحت سن 20 عامًا (P = .000)، والأمهات غير المتعلمات (P = .000)، وأولئك الذين يلدون بعد الأوان (P = .000)، والذين لديهم تاريخ من العمليات القيصرية السابقة (P = .000)، وعدم الالتزام إلى بالرعاية السابقة للولادة (P = .000)، والنساء المصابات بأمراض مرتبطة بالحمل (P = .000) يُظهرن ميولًا أعلى بكثير لإجراء عملية قيصرية اختيارية، مع نسب الأرجحية التي تتراوح من 2.5 إلى 25 تقريبًا.

الاستنتاجات: تحدد الدراسة العوامل المختلفة المرتبطة بأنواع مختلفة من العمليات القيصرية ومضاعفات ما بعد الولادة، مع عمر الأم أقل من 20 عامًا، ونقص التعليم، والولادة بعد النضج، والعمليات القيصرية السابقة، وعدم انتظام حضور الرعاية السابقة للولادة، والأمراض المرتبطة بالحمل مما يزيد بشكل كبير من احتمالية حدوث ذلك. يجب على مقدمي الرعاية الصحية مراعاة هذه العوامل عند اتخاذ قرارات الولادة وإعطاء الأولوية للرعاية الشاملة قبل الولادة وبرامج التعليم للسكان المعرضين للخطر.

جـامعة كـربـــلاء

كـليــة التمــريـــض

المضاعفات الامومية و العوامل المرتبطة بها لدى الامهات و المتعلقة بنوع العملية القيصرية

رسالة مقدمة الـى

مجلـــس كلية التمريض/ جامعة كربلاء

كـجزء من متطلبـات نيل درجة المـاجستير في علـوم التمريـض

كتبت بواسطة

ولاء ياسين ديب

بإشراف

أ.م.د. ساجدة سعدون عليوي

نيسان /2024 ميلادية *شوال / 1445 هجرية*