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College of Nursing



**Association between Modes of Delivery and
Feto- Maternal Complications outcomes at AL
Zahraa Maternity & pediatric Teaching Hospital
in Al Najaf AL Ashraf City**

A Dissertation Submitted to
**Department of maternity nursing of the College of Nursing,
University of Babylon**

By

Fatimah Fadil Jawad

*in Partial Fulfillment of the Requirements for the Degree
Doctorate of Philosophy in Nursing science*

Supervised

Prof.Dr. Shukriya Shadhan Chyad AL Ogaili

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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We members of the dissertation discussion committee, certify that we have reviewed the dissertation entitled (*Association between Modes of Delivery and Feto- Maternal Complications outcomes at AL zahraa Maternity & pediatric Teaching Hospital in Al Najaf AL Ashraf city*)

Submitted by Fatimah Fadil Jawad
, from the Department of Family and Community Health Nursing, and we have examined the student in its contents, and what is related to it and we decide that it is adequate for awarding the (**Doctorate of Philosophy in Nursing**) with specialty of (**maternal and newborn health nursing**) at an estimate of ().

Signature
Prof. Dr.
Saadya Hadi Humade
Member
Date / / 2022

Signature
Assist.Prof.
Naji Yasser Saadoon
Member
Date / / 2022

Signature
Assist.Prof.
Hanan Khudhair Hussein
Member
Date / / 2022

Signature
Assist.Prof.
Israa Harjan Mohsen
Member
Date / / 2022

Signature
Prof. Dr.
Muna Abdul Wahab Khalil
Chairman
Date / / 2022

Approved by the council of the College of Nursing

Signature

Prof. Dr. Amean A. Yasir
Dean, College of Nursing, University of Babylon
Date: / / 2022

Supervisor Certification

I certify that this dissertation, which is entitled (Association Between Modes of Delivery and Feto-Maternal Complications outcomes at AL zahraa Maternity & pediatric Teaching Hospital in Al Najaf AL Ashraf city), submitted by Fatimah Fadil Jawad to the University of Babylon, College of Nursing in partial fulfillment of the requirement for the Degree of Doctorate of Philosophy in Nursing Science. The dissertation work is carried out by student under my supervision and guidance.

Signature

Academic Supervisor

Prof. Dr. Shukriya Shadhan Chyad AL Ogaili

AL Forat AL Awsat University, institute of Kufa

Date: / / 2022

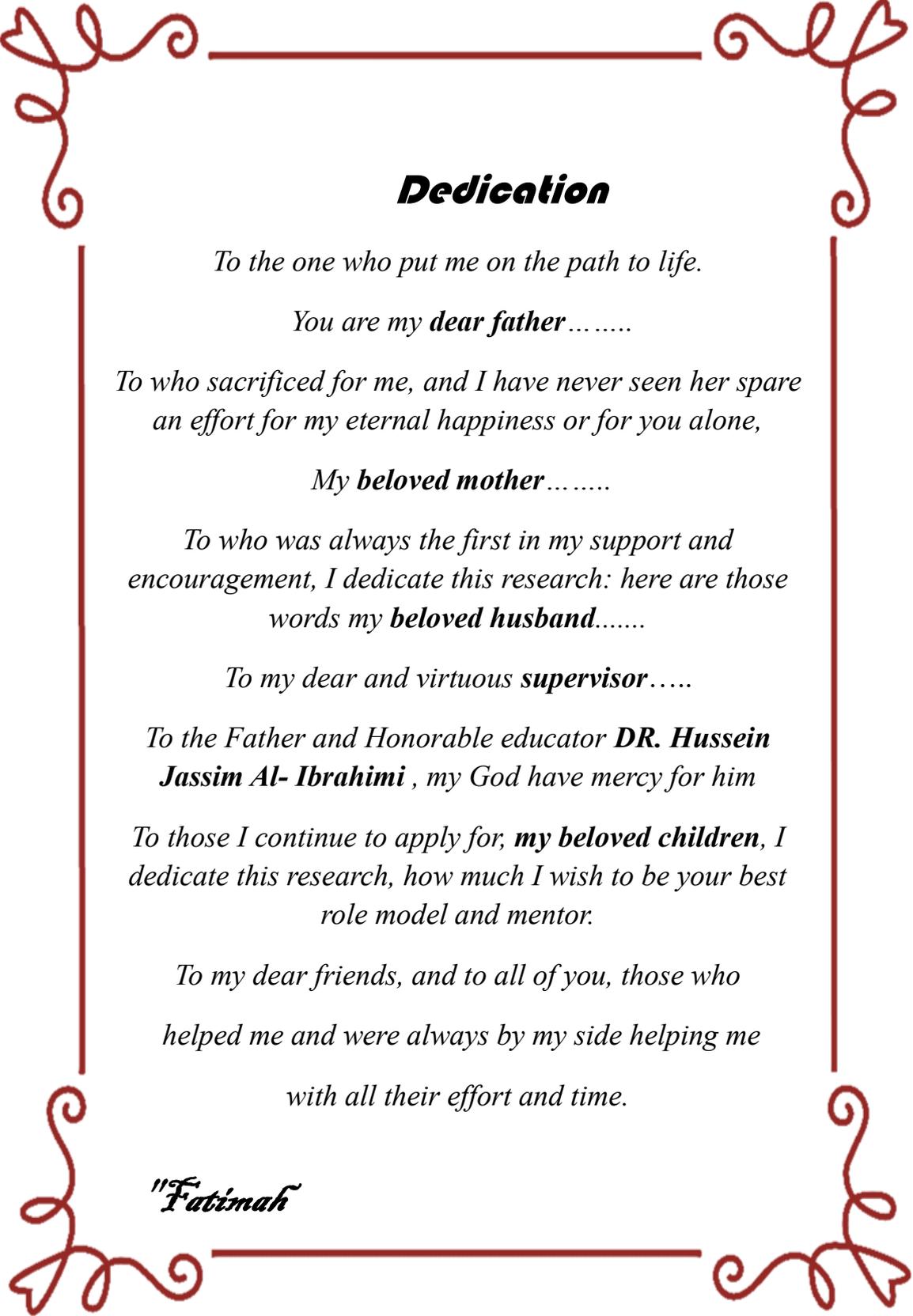
Signature

Head of Maternal & child Health Nursing branch

Instructor Dr. Wafaa Ahmed Ameen

College of Nursing, University of Babylon

Date: / / 2022



Dedication

To the one who put me on the path to life.

*You are my **dear father**.....*

*To who sacrificed for me, and I have never seen her spare
an effort for my eternal happiness or for you alone,*

*My **beloved mother**.....*

*To who was always the first in my support and
encouragement, I dedicate this research: here are those
words my **beloved husband**.....*

*To my dear and virtuous **supervisor**.....*

*To the Father and Honorable educator **DR. Hussein
Jassim Al- Ibrahim** , my God have mercy for him*

*To those I continue to apply for, **my beloved children**, I
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role model and mentor.*

*To my dear friends, and to all of you, those who
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with all their effort and time.*

*"**Fatihah**"*

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Researcher
Fatimah

Summary

Background: Misconceptions about the consequences of maternal health after normal delivery and caesarean section contribute to the increased prevalence of caesarean section, although morbidity and mortality in mothers due to caesarean sections are more common than normal delivery. This study aimed to determine complications of delivery modes (caesarean section and normal vaginal birth) for fetal and mother outcomes at AL Zahraa Maternity Teaching Hospital in AL Najaf Al Ashraf city. Methodology: A descriptive and analytic study. A Purposive sample of 200 women (100 have caesarean section and 100 have vaginal delivery) Carried out during and after (vagina delivery and caesarean section) who attending to AL Zahraa Maternity Teaching Hospital in AL Najaf Al Ashraf city .data was collected by use questionnaire . During period from 15th July to 28thDecember .2021. Result: the result showed the complications outcomes for mothers and newborns from caesarean section are higher than those resulting from normal vaginal delivery. Concerning the maternal demographical and reproductive characteristics, in case vaginal delivery, the results showed that there is a statistically significant relationship between the maternal age and maternal complications resulting from vaginal delivery. While, the maternal age and the interval between pregnancies had a significant association with the complications out comes for newborn. With respect to, caesarean section, there was a statistically significant associasion between maternal complications of caesarean section and maternal body mass index (pre pregnancy and after birth), age, residence and occupation. Regarding newborn coplications outcomes the results showed the complications of newborn after vaginal delivery were less than complications of newborn after caesarean section.The mother's body mass index after birth and parity had a significant association with the complications out comes for newborn. Conclusion: the complications from caesarean section are higher than those resulting from normal vaginal

delivery in this study. Also, the maternal age and pre pregnancy body mass index, body mass index after birth and interval between pregnancies have high associated with maternal and newborn complications of cesarean section & vaginal delivery. Recommendations: Using different types of mass media to stimulate public awareness about complications of cesarean section particular in primary health centers and The pregnant women should be encourage to have regular visit to primary health centers to obtain knowledge about cesarean section & vaginal delivery. The nurse must take role of that.

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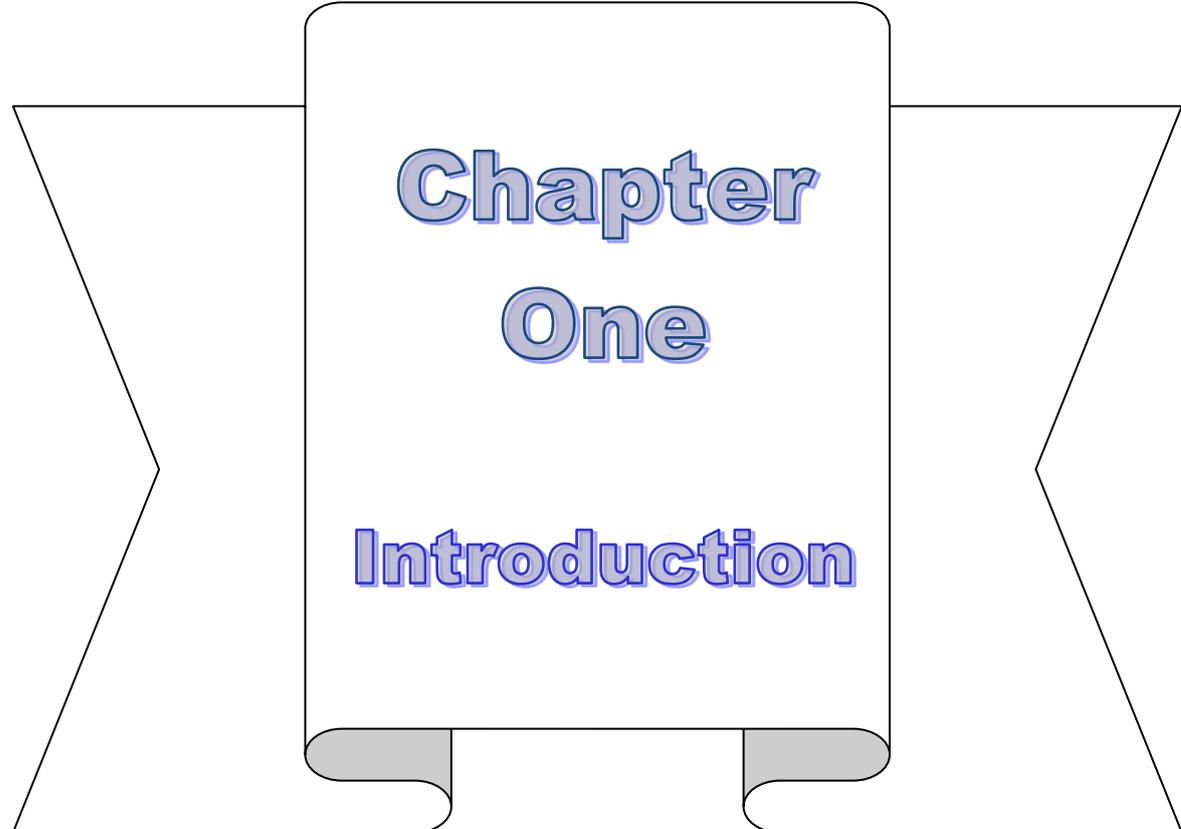
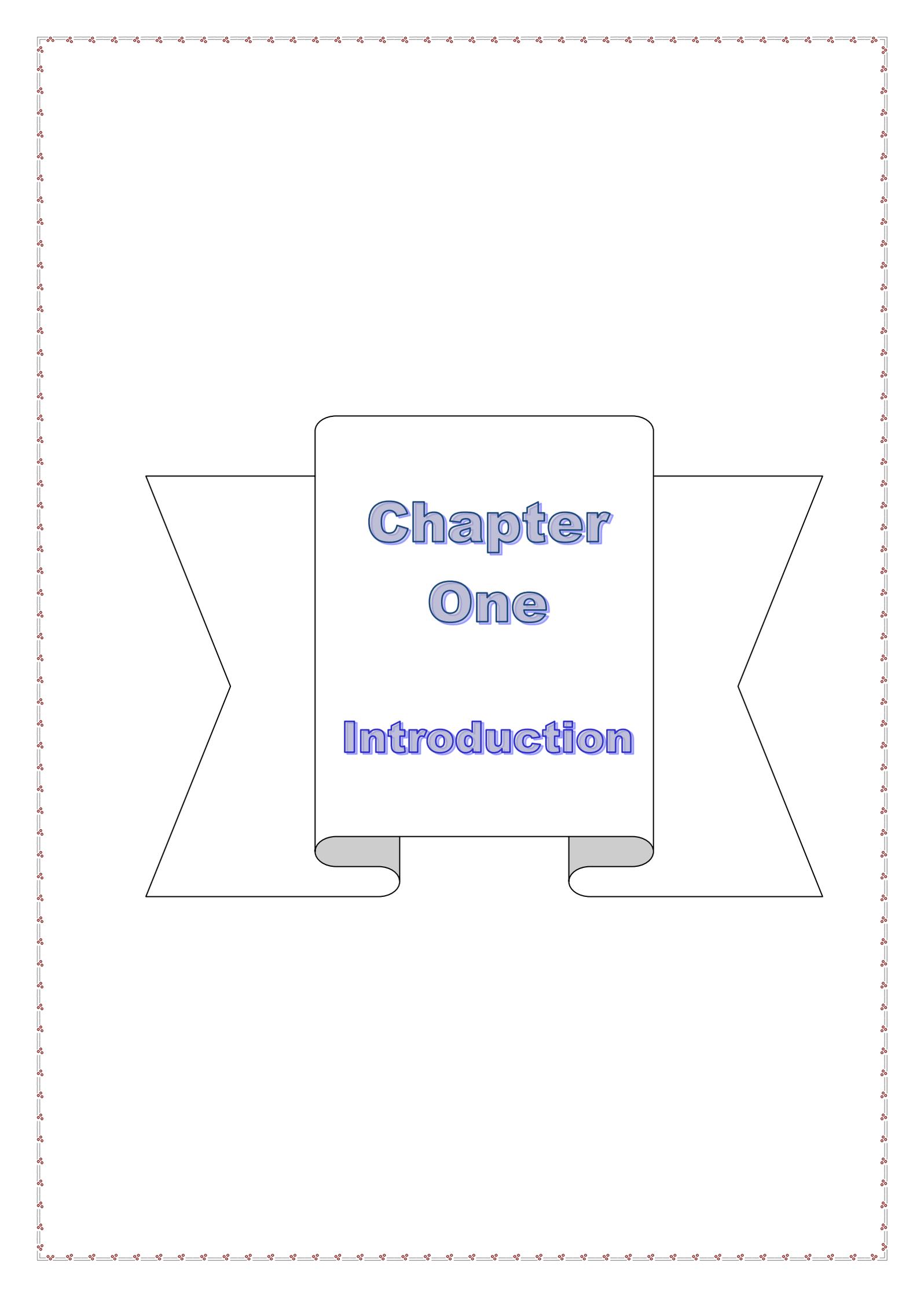
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List of Abbreviation

Abbreviation	Full term
AOI	Adverse Outcome Index
AAFPs	American Academy of Family Physicians
ACOG	American College of Obstetricians and Gynecologists
BMI	Body mass index
BPI	brachial plexus injury
CPR	cardiopulmonary Resuscitation
CDMR	Cesarean Delivery on Maternal Request
CS	cesarean section
DVT	deep vein thrombosis
ECD	emergency cesarean delivery
EA	epidural anesthesia
FIGO	Federation International of Gynecology and Obstetrics
HIV	Hepatitis infectin virus
ICU	Intensive care unite
IPDS	intrapartum fetal deaths
KAUH	King Abdul-Aziz University Hospital
MRI	Magnetic Resonance Imaging
MBR	Medical Birth Register
MDC	Midwives Data Collection
MDG	Millennium Development Goal
NHS	National Health Service
PFF	post-cesarean femoral fracture
PPA	Postpartum anemia
PPH	Postpartum hemorrhage
PROM	Premature rapture of membrane
PHCs	Primary health care centers
PE	pulmonary embolism
RA	regional anesthesia
RDS	respiratory distress syndrome
RCOG	Royal College of Obstetricians and Gynecologists
SMO	severe unfavorable maternal outcomes
SI	Severity Index
SA	spinal anesthetic
CSE	spinal-epidural anesthesia
SVD	Spontaneous Vaginal Delivery
SSI	Surgical site infections
MMR	The median maternal mortality
NHI	the National Health Insurance
TDD	time Date delivery
TTI	time from entry to the operation room until incision
TF II a	Tissue factor
TBA	traditional birth attendant
TTN	Transient Tachypnea of the Newborn

VII/VIIa FVA (FVII/VIIa)	transmembrane receptor for Factor
UCP	unexplained pregnancy loss
UNFPA	United Nations Population Fund
UTI	Urinary tract infection
VBAC	Vaginal birth after cesarean birth
VD	vaginal delivery
VTE	Venous thromboembolism
VVF	Vesico-Vaginal fistula
WAOS	Weighted Adverse Outcome Score
WHO	World Health Organization



Chapter One

Introduction

1.1 Introduction

The passage of a fetus from a pregnant woman by vaginal or cesarean section is referred to as the mode of delivery. CS is an old surgical operation that involves delivering the fetus through an incision in the mother's belly and uterus (Gondwe, 2018)

Pregnancy and childbirth are incredibly important life events that have a direct impact on many families. Childbirth can take place either vaginally or by cesarean section. Caesarean section rates have been progressively growing over the world in recent years. This is despite the World Health Organization (WHO) advice that rates remain between 10-15% (WHO, 2015)

Many studies have revealed that normal vaginal delivery has the lowest ratio of any form of birth in the globe. In the United States was 22 percent, in Brazil, was 25 percent, in Chile, it was 27 percent, and in 19 Latin American nations, ranged from 17 to 40 percent. The World Health Organization recommends that the rate not exceed 15% of all births (Al-Kareem and Kadhum. 2020)

Healthy women had more than five times the number of C-sections as poor women in low- and middle-income nations. According to the data 32 percent of deliveries in the United States were by C-section in 2015 up from 23 percent in 2000 and 26.2 percent of births in the United Kingdom were performed through C-section in 2015 up from 19.7% in 2000. South Sudan has the lowest C-section rate, at 0.6 percent in 2010, according to a World Health Organization study. While the Dominican Republic had the highest, at 58.1 percent in 2014. Brazil with 55.5 percent of deliveries via C-section in 2015; Egypt, with 55.5 percent in 2014; Turkey, with 53.1 percent in 2015; and Venezuela, with 52.4 percent in 2013 (Boerma *et al.*, 2018)

In the Middle East, nations such as Iran (VD) had the lowest rate, while other countries such as China (CS) had the highest rate (41.9 percent) in 2008, making it the second highest rate among other countries. In 2012, the percentage in Isfahan, Iran's southernmost city, was even higher than the national figure (62 percent) (Majida *et al.*, 2013)

There has been a decrease in the number of normal vaginal deliveries in Iraq as the number of cesarean sections and other deliveries has risen. In 2009, the rate was 24.5 percent; in 2010, it was 25.8 percent. In the private sector, the rate was much higher, at 75.8 percent and 79.5 percent (Shabila, 2017)

Cesarean section without medical necessity is related with greater risks of perinatal issues to women and babies in the short and long term, and it also impacts subsequent pregnancies (Betran AP *et al.*, 2016)

Cesarean section is the delivery of a fetus through incisions in the abdominal and uterine walls. When compared to vaginal delivery, Cesarean section increases the health risks for moms and infants as well as the expenditures of health care. Cesarean section is used to treat a wide range of conditions, including labor dystocia, malpresentation (breech or brow), cephalo-pelvic disproportion, fetal distress, and prior cesareans. Cesarean section is a somewhat frequent operation in current obstetric practice, with Cesarean section rates increasing from 5% to more than 30% in several developed nations during the last 40 years. Globally, the Cesarean section rate is approximately 21.1 percent in the most developed areas, 14.3 percent in the developing countries, and 2% in the least developed areas (Alheshimi *et al.*, 2019)

When certain difficulties emerge during pregnancy and labor, a caesarean section (CS) is a life-saving medical surgery. However, it is a significant procedure with immediate maternal and neonatal dangers, as well

as consequences for future pregnancies and long-term repercussions that are currently being studied (Gregory *et al.*, 2012)

However, despite little evidence that Cesarean section without medical explanation can lower maternal and newborn morbidity and death, its usage has expanded rapidly globally in recent decades (World Health Organization, 2015)

In the years 2007–2008, China had the greatest rate of Cesarean section, accounting for over half of all infants delivered through Cesarean section. Although China's total yearly Cesarean section rate fell to 34.9 percent in 2014, over a fifth of Chinese counties had a Cesarean section rate more than 50 percent. (Li HT *et al.*, 2017)

The World Health Organization (WHO) recommends that the cesarean section (CS) delivery rate in any region not exceed 15% of deliveries, and that it be performed only in medically necessary conditions to avoid risks to the newborn or the mother. However, the global rate of CS delivery is growing, and it is not always conducted due to medical necessity. Because CS delivery is a surgical operation, problems can occur both during and after the surgery (Gondwe, 2018)

When compared to vaginal birth, cesarean it is related with a greater risk of not only short-term but also long-term maternal complications. Complications such as infectious diseases, surgical injury, hemorrhage/transfusion, and hysterectomy, but also long-term birth complications such as adhesion formation and complications in later pregnancies such as uterine rupture, abruption, abnormal placentation, and hysterectomy (Curtin *et al.*, 2015)

Despite a paucity of evidence supporting significant maternal and perinatal benefits associated with CS rates above a certain threshold and

some studies demonstrating a link between increasing CS rates and poorer outcomes, the use of CS has increased dramatically worldwide in recent decades, particularly in middle- and high-income countries. The factors that contribute to its expansion are many and poorly understood. This trend has been related to changes in maternal characteristics and professional practice techniques, as well as rising malpractice and economic, organizational, social, and cultural difficulties. Additional difficulties and arguments surrounding CS include discrepancies in the procedure's usage not just across countries, but also within countries, as well as the costs associated with unnecessary caesarean sections on financially constrained health systems (Betrán *et al.*, 2016).

Cesarean birth rates continue to grow over the world, with latest (2016) figures showing rates of 24.5 percent in Western Europe, 32 percent in North America, and 41 percent in South America. Cesarean section rates vary greatly among nations, ranging from 0.4 to 40%, and the trend has been steadily increasing over the last 30 years. (Keag *et al.*, 2018)

Furthermore, increasing the CS rate does not reduce the incidence of newborn hypoxia. In their analysis, the rate of NICU hospitalizations was greater following CS births (Kupari *et al.*, 2016)

In Iraq, the overall rate of cesarean section increased remarkably from 18.0% in 2008 to 24.4% in 2012; the rate increased in all of the governorates during this period except Maysan. The increase was highest for Basrah, Al-Sulaimaniya and Kirkuk with a relative change of 90.8, 58.0 and 52.0%, respectively. CS is associated with immediate and delay morbidity and mortality risk compared with vaginal deliveries. The complications divided into short-term which includes infection, hemorrhage, urinary tract or bowel problems, venous thrombosis and embolism and long-term risks, which

includes abnormal placentation, scar complications, uterine rupture, and adhesions (Alheshimi *et al.*, 2019)

Cesarean delivery is the most common procedure done globally. This surgery is not completely risk-free due to the possibility of complications. It has been shown that CS is related with a 3-6 times increase in the probability of serious consequences. It also promotes distant gynecological morbidity. (Sholapurkar, 2014; Cunningham *et al.*, 2014)

The most frequent surgical operation performed on women globally is a cesarean section (CS). It can save the mother and newborn's lives, but it is also known to have the standard problems of any major surgery: bleeding, infection, venous thromboembolism, and anesthetic issues, which can sometimes result in maternal mortality. Medical advances, such as antibacterial and antithrombotic prophylaxis, have increased the safety of CS. Over the last few decades, many obstetricians have perceived the dangers associated with CS to be so minimal that they are ready to execute a CS on relative medical grounds, and even without medical indications. To explain the widespread use of CS, some obstetricians underline the hazards associated with vaginal delivery (VD), such as the risks of infant hypoxia and trauma, as well as the possibility of obstetric tears (Pallasmaa., 2014)

Cesarean section rates vary greatly among nations, ranging from 0.4 to 40%, and the trend has been steadily increasing over the last 30 years. Increasing cesarean section rates were related with declines in both outcomes, although such a connection did not exist in high-income nations. (Gregory *et al.*, 2012)

For cesarean birth, the anesthetic procedures of choice include general anesthesia and regional anaesthetic. Both the fetus and the mother are affected by these anesthetic procedures. Choose the anesthetic methods for a cesarean birth. Is influenced by a number of circumstances, including the

patient's physiological condition, the practitioner's degree of expertise, the availability of medications and equipment, and so on. Regardless of the procedure utilized, it is chosen due to its potency and potential advantages to both mother and fetus (Mahadi & Khan., 2021)

Cesarean birth can be performed as a voluntary operation or in the event of an emergency. In both developed and developing countries, the number of women giving birth through cesarean section is increasing, whether at the woman's request or as a consequence of complications (Ghaaffari *et al.* 2018).

The United States has a higher rate of cesarean birth (about 65%). The benefits in terms of health and safety for the mother and fetus are an important consideration when selecting an anesthetic approach for cesarean birth. Despite advances in anesthetic procedures, surgeries have gotten safer and more secure over the years, but there is still considerable maternal and fetal death and morbidity. Various types of general anesthesia and regional anesthesia which is the most often used, like as spinal anesthesia and epidural anesthesia, are used in various types of procedures, or combination spinal-epidural anesthesia can be used to achieve anesthesia during cesarean birth (Sumikura *et al.*, 2016)

Regional anesthetic, elective uncomplicated cesarean births benefit from spinal anesthesia, in particular, since it avoids airway obstruction, reduces the risk of stomach aspiration, and is very simple to administer (Kim *et al.*, 2019).

However, there are several dangers associated with regional anesthesia such as low blood pressure, anesthetic poisoning, post-dural puncture headache (PDP H), also damage to the nerves (Baakri & et al. 2015; Aregaawi *et al.*, 2018).

However, general anesthetic continues to be used. Utilized in some cases, particularly when regional anesthetic is contraindicated (The patient's refusal, Allergy to local anesthetics) or fails. General anesthesia has several advantages, including a patent airway, regulated breathing, and reduced cardiovascular depression (Devroe et al., 2015).

GA is prone to complications such as failure intubation, failed breathing, and aspiration of stomach contents, as well as consciousness, discomfort, and fetal depression. (Yehuda *et al.*, 2013)

no change in the Apgar score at the 5 minute mark between regional and general anesthesia. However the researchers concluded that there is insufficient data to indicate that regional anesthesia is preferable to anesthetic in general (Kim *et al.*, 2019).

Cesarean delivery can significantly reduce maternal and perinatal mortality and morbidity in the event of maternal or fetal problems; nevertheless, a rising number of newborns are delivered by cesarean when there is no medical or obstetric rationale. The short-term risks of cesarean delivery for the mother, such as infection, hemorrhage, visceral injury, and venous thromboembolism, have been reduced to the point where cesarean delivery is considered as safe as vaginal delivery in high-income countries; however, in low and middle-income countries, there is an increased risk of adverse short-term maternal outcomes even when cesarean delivery is performed without medical indication (Keag *et al.*, 2018)

After elective and emergency CS, the incidence of the risk of maternal problems rises by two to five times, respectively. Maternal problems include a higher chance of postpartum hemorrhage, hysterectomy, infection, and deep vein thrombosis, as well as lengthier a longer stay in the hospital, as well as an increased risk of future pregnancies. Information on the impact of raising the C\S proportion on lowering newborn problems varies between

locations. Aside from an increased fetus and neonate mortality problems comprise an increasing chance of newborn Admission to the intensive care unit, respiratory morbidities, and mother-infant separation are all possible outcomes. (Khasawneh *et al.*, 2020)

1.2 Importance of study

Every year, at least 500, 000 women die as a result of pregnancy and childbirth difficulties worldwide. Hemorrhage, infection, hypertensive disorders of pregnancy, and obstructed labor account for more than 70% of all maternal fatalities (Shiferaw & Toma, 2019).

According to the most recent statistics, the number of CS at Al Zahra Teaching Hospital in ALNajaf AL Ashraf in 2018 was (5008) CS delivery, (6535) CS birth in 2019, and (6769) cesarean birth in 2020. While at AL Hakeem teaching hospitals, the number of cesarean section births in (2017) was 1545, in (2018) was 1638, in (2019) was 1530, and at the end of (2019) and in 2020, this hospital became a center for corona patients and did not receive deliveries. (The anunual report Najaf Health Department, 2021).

Caesarean sections are only successful in preserving mother and newborn lives when medically necessary. There is no advantage to caesarean birth for moms or infants who do not need it. Furthermore, CS can have both immediate and long-term risks that can last for many years after the operation and be damaging to both the mother and kid. However, caesarean births have become more prevalent in practically all nations in recent years (WHO, 2014).

Vaginal delivery is becoming less common as the prevalence of caesarean section rises consistently in many nations. Birth via Caesarean section has ramifications for both mothers' and fetus' current and future health, in addition to preventing maternal and perinatal morbidity and death.

The rate of increase in some countries appears to be related to other factors rather than the existence of new evidence for the need to change practice. Surgical advancement, expansion of cesarean section medical indications, malpractice litigation, and maternal request for cesarean section are some of these factors (Rahman & Pradhan, 2016) (Zwecker *et al.*, 2011).

Every year, more than 1.5 million females worldwide suffering from problems associated to pregnancy and delivery. During pregnancy and childbirth, and these women are a susceptible demographic for long-term repercussions, both physically and mentally. In low-income nations, preserving a pregnant woman's life necessitates targeted medical action, therefore near-miss cases of death are seen as obstetric success and postpartum follow-up may be ignored. Obstructive/prolonged labor, postpartum hemorrhage, and sepsis/infections are the most common obstetric problems (Sengoma *et al.*, 2018)

The global ratio of cesarean labor has risen and is currently greater than the World Health Organization's recommended maximum limit of 15%. . Although the maternal morbidity associated with cesarean section is not particularly severe, the immediate risks of both mild and severe problems connected with birth are increased following cesarean section (Stavrou *et al.*, 2011).

All women who have CS, whether indicated or elective, are at risk of a number of problems. Preventing needless CS must be a top focus, especially in circumstances with a high risk of adverse outcomes and significant unfavorable complications for future pregnancies (Heemelaar *et al.*, 2016).

Many women, for example, Refuse CS in favor of vaginal delivery, for example, because of the associated disadvantages, which include higher surgical expenses, long recovery for the woman, elevated potential for

adverse events in later pregnancies, and increased complications associated, such as infectious diseases, injury to nearby organs, and dying, especially given the high incidence of (HIV) infections. On the other hand, Women who are afraid of the pain associated with vaginal birth choose CS. Culture, awareness of risks and advantages, and personal and societal variables are said to impact women's preferences for mode of delivery. Women's choices are motivated by a variety of factors, includes the desire to return to family and the anticipated ease of healing, as well as worries about the baby's safety (Lumbiganon *et al.*, 2010)

The investigator selected this problem that were considered as Contributors to morbidity and mortality for women and newborn and so assist women in making decisions, particularly in the event of elective CS. This will also aid in policy development and the development of a health education agenda, hence increasing population awareness. It will also improve best practices in childbirth, leading to improved results in Iraq in general and AL Najaf in particular.

1.3 The problem of statement:

Association between Modes of Delivery and feto-maternl Complications outcomes at AL Zahraa Maternity Teaching Hospital in Al Najaf AL Ashraf city

1.4 The objectives of the study:

The study aims to:-

1.4.1 Determine the complications of delivery modes (cesarean section and normal vaginal birth) for fetal and mother outcomes at AL Zahraa Maternity Teaching Hospital in AL Najaf Al Ashraf city.

1.4.2 Find out the association between the maternal complications outcomes related modes of delivery (C\S and V D) and demographic variables.

1.4.3 Find out the association between maternal complications outcomes related the modes of delivery (C\S and V D) and reproductive variables.

1.4.4 Find out association between presences of Newborn complications outcomes related both modes of delivery and maternal demographical data.

14.4.5 Find out association between presences of newborn complications outcomes related both modes of delivery and maternal reproductive variables.

1.5. The Hypothesis

1.5.1. Null Hypothesis:

1.5.1.A. There is no significant association between maternal Complications during and after both modes of delivery (VD& C\S) with maternal demographical variabeles

1.5.1.B. There is no significant association between of maternal Complications during and after both mode of delivery (VD& C\S) with maternal reproductive variabeles

1.5.1.C There is no significant association between Newborn Complications during and after both modes of delivery with maternal demographical variables.

1.5.1.D. There is no significant association between Newborn Complications during and after both modes of delivery with maternal maternal reproductive variables.

1.5.2. Alternative Hypothesis:

1.5.2. A. There is a significant between maternal Complications during and after both modes of delivery (VD& C\S) with maternal demographical variables

1.5.2. B. There is a significant between of maternal Complications during and after both mode of delivery (VD& C\S) with maternal reproductive variables

1.5.2. C. There is significant between Newborn Complications during and after both mode of delivery and maternal demographical variables.

1.5.2.D. There is significant association between Newborn Complications during and after both mode of delivery and maternal maternal reproductive variables.

1.6 The terms definition:

1. 6.1 Association:

1. 6. 1 A- Theoretical definition:

A link or relationship between two or more items or individuals.

(<http://www.webster.com/dictionary/association>, 2021)

1.6.1. B- Operational definition:

The manner of delivery is influenced by a variety of variables (cesarean section and normal vaginal delivery)

1. 6. 2 Modes of delivery:

1. 6. 2. A- Theoretical Definition:

The term "mode of delivery" refers to the series of actions via which a woman ejected her fetus. The delivery modes in this study include

1-Vaginal delivery. Giving birth naturally has long been universally considered as the only acceptable method of birth.

2-Caesarian section which involves a surgical incision, has also been was often used as a method of delivery, particularly for women with medical reasons. (Maalim, 2017).

1. 6. 2. B- Operational Definition

In this study, the mode of delivery was

Normal vaginal birth (It is when there is no need to start labor or use forceps or vacuum extraction.

Alternatively, a **caesarean section**, which is when a surgical incision is made, has also been used as a way to give birth, especially for women with medical or obstetric reasons.

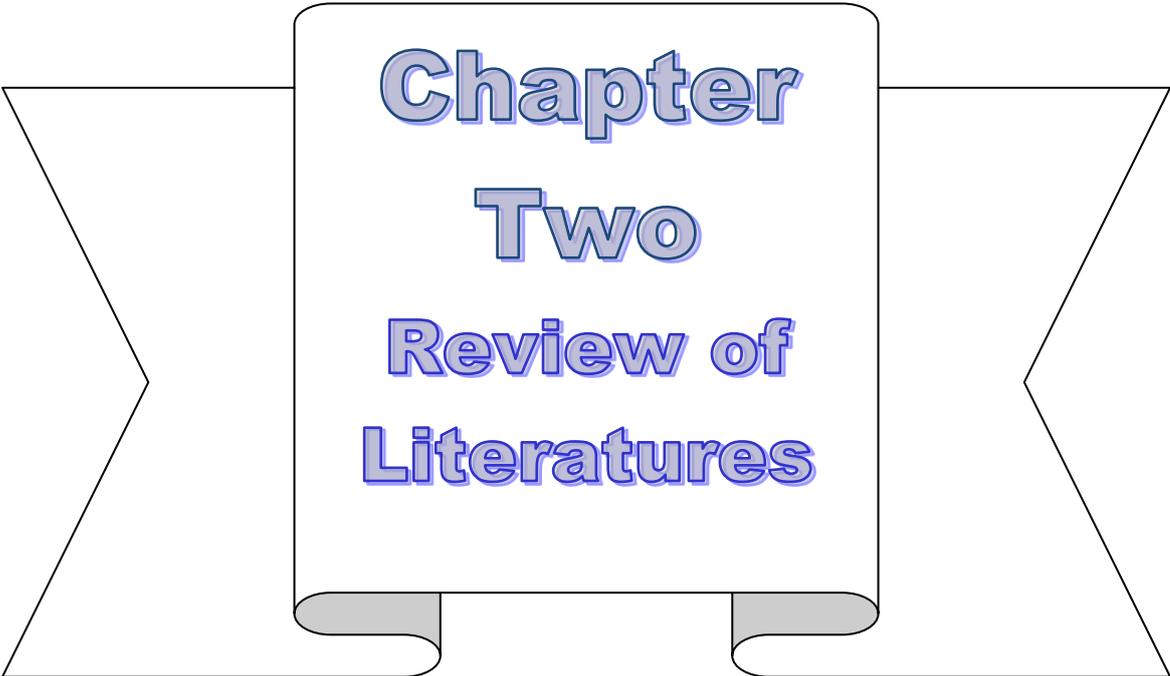
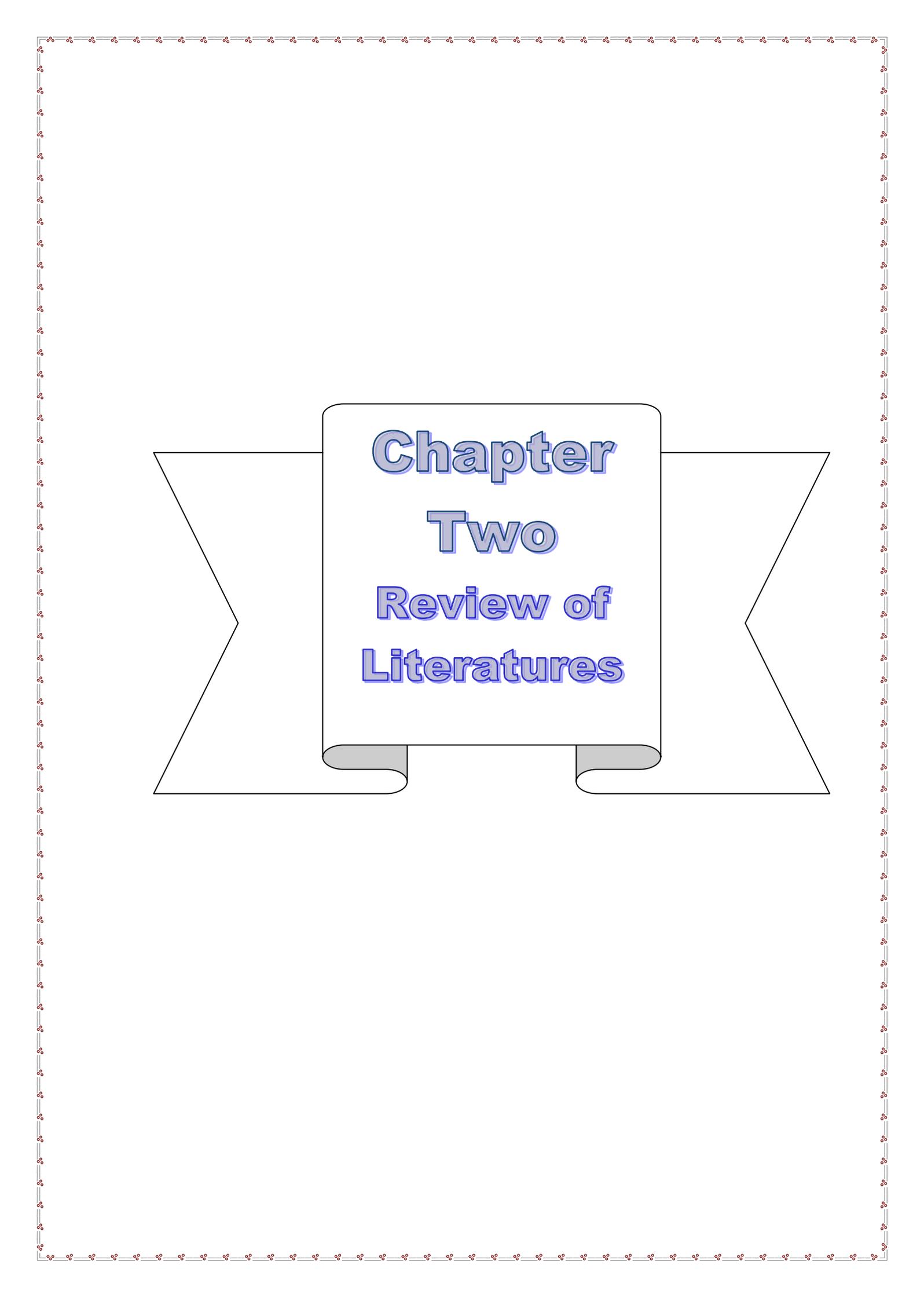
1. 6. 3 Maternal and fetal Complications

1. 6. 3. A- Theoretical Definition

Complications are health issues that arise during or after childbirth. They might concern either the mother's or the baby's health, or both. (Duhulo, 2017).

1. 6. 3. B- Operational Definition

Outcomes of complications: The results of maternal and newborn problems were compared for various techniques of delivery (cesarean section and normal vaginal delivery). Short-term hazards include infection, bleeding, urinary tract or intestinal difficulties, venous thrombosis and embolism, while long-term risks include aberrant placentation, scar troubles, uterine rupture, and adhesion.



**Chapter
Two
Review of
Literatures**

2.1. High-Level Overview (Historical Background of mode of delivery)

Maternity and delivery are distinct experiences in the lives of women and their families. This may be a period of great hope and joy (El-Nagar et al., 2017)

Pregnancy and childbirth are important life experiences that are seldom seen as "risky," especially for the mother, in high-income nations. Maternal fatalities in the United Kingdom have been registered since 1928. The system of confidential examination into the causes of each maternal mortality has been appreciated and emulated in other high-resource situations (Briley, 2014) Historically, CS was performed post-mortem to comply with the *lex regia*, a Roman regulation prohibiting the burial of an unborn woman. Although the 15-16th century describes caesarean birth as a surgical technique, some skepticism may be warranted when successful instances of women having many caesarean deliveries are reported. In the nineteenth century, the mortality rate following abdominal birth was over 75%. Closing the uterus, recommended by Max Sanger in 1882, and the advent of aseptic procedure about 1870 were both critical contributors in lowering maternal mortality (Lurie, 2012).

Since 1985, the worldwide healthcare community has advised a 10% to 15% caesarean section rate. Since then, both rich and developing nations have expanded their use of C-sections. The use of cesarean sections may considerably decrease maternal and perinatal mortality. There is minimal evidence that caesarean delivery benefits moms or babies who do not need it. Caesarean sections, like any surgery, have short and long term hazards that might affect the woman's health, her child's health, and future pregnancies. Lack of obstetric care increases these risks. (WHO, 2015).

Cesarean section has a long history dating all the way back to ancient Hindu, Greek, and Roman eras. According to legend, Julius Caesar was delivered through cesarean section, which is why the surgery is called cesarean. While the account is dubious since mother of Caesar, Ariel, is supposed to have survived to witness the conquest of Britain by Roman. Several years later, but CS operations were carried out on women who were already dead or dying.. The term cesarean is most possible derived from the "Latin verb caedere," which meaning sever (Thurn, 2019).

The health of the mother and fetus has not always been the primary justification for performing a caesarean section. Indications of religion have reportedly been found in India and ancient Egypt (c. 3000 BC) (1500 BC). The Jewish Mishnah (140 BC) determined that twins must be born by caesarean section in order to receive both the benefits of primogeniture and the right to do so. The Colonial Council (1280) mandated that when the mother passed away, a cesarean section must be performed. In the Republic of Venice (1608), physicians who failed to try to save a soul in cases of maternal death were subject to fines. In the United States (1769–1833), Franciscan missionaries were required to possess the expertise and dexterity necessary to perform a section. (Sarmiento, 2018).

Pregnancy is a natural process that causes a number of physiological and psychological changes in pregnant women. However, a normal pregnancy might have several issues and difficulties that could endanger the mother and fetus's lives. Pregnancy is a hugely important occurrence from both a social and a medical standpoint. As a result, pregnant women should get special care and attention from their families, communities, and health care providers (Mekonnen & et al., 2018)

Pregnancy, childbirth, and early parenthood are all life-changing events that have an immediate impact on many families. Childbirth can take place either through the birth canal (cervical and vaginal) or by a cesarean section. Caesarean section rates have been progressively growing over the world in recent years. This is despite the World Health Organization (WHO) advising that rates remain between 10-15%. (Mohamed, 2015)

The fetus, membranes, umbilical cord, and placenta are all evacuated from the uterus during labor. Labour is induced by biochemical changes in connective tissue, as well as gradual effacement and dilation of the uterine cervix caused by rhythmic uterine contractions of adequate frequency, intensity, and length (Ong'era, 2021).

Giving birth naturally, or 'Vaginal Delivery,' is largely acknowledged as the unquestionable form of birth across the world. However, Caesarean delivery which necessitates a surgical medical incision, has also been utilized as a delivery method. Particularly among women who are pregnant for medical reasons In this regard, caesarean section is crucial in reducing maternal morbidity and mortality related to direct causes such as hemorrhage, infections, gestational hypertension, and obstructed labor (WHO. 2010).

When problems and obstetric risk are predicted, surgical interventions during births are frequently performed for the protection of both the mother and the child (Kamal, 2013).

When vaginal delivery is not possible, a Caesarean section can be a lifesaving operation for both mother and baby. It is, however, linked to higher morbidity and death. (Souza & et al., 2016).

2.2. Mode of delivery incidence and prevalence (vaginal delivery & caesarean section)

Globally, the rate of caesarean section has been rising, particularly in high and middle-income nations where more women have a choice about how their baby is born. Every year, an estimated 18.5 million cases of caesarean section are reported throughout the globe. Cyprus has the highest caesarean section rate in the world, at 50%, While Chad has the lowest percentage at 0.4 percent, while the worldwide standard is set at 20 percent.) (Crowther & et al., 2012).

Whereas the most prevalent maternal consequence following cesarean birth was acute morbidity, operative wound infection, maternal mortality, severe anemia, and vaginal bleeding are all risks associated with giving birth are all risks associated with giving birth. When compared to vaginal birth, cesarean delivery is related with a lower risk of urine incontinence, faecal incontinence, pelvic discomfort, and pelvic organ prolapse in the mother. (Keag et al., 2018).

Since 1985, the WHO has pushed for maintaining caesarean section rates around 10-15% globally, despite recent studies demonstrating a link between greater CS rates and lower maternal/child perinatal death rates. Although According to current findings, a 19% limit would be more sensible. Nonetheless, cesarean births have practically become a pandemic event in recent decades, with about a third of women globally delivering through cesarean. In 2015, traditional delivery caused 29.7 million births (21.1 percent of all births), nearly twice as many as in 2000 (12.1 percent), while an estimated 6.2 million births were conducted in excess (without medical reason) globally. (Cegolon & et al., 2020).

The rate of CS in Iraq neighboring countries is variable; in Saudi Arabia the rate of CS reported to be high (43%) in 2018. In Jordan, during 2011- 2012 CS rate was (29.1%). In Syria, the rate of CS was still increased to reach (46%) in 2016. In Turkey, the caesarean section rate in 2017 was (53.1%). In Iran, the caesarean section rate in 2015 still high and it constituted (43.0%). In some of developing countries, in Egypt the CS rate during 2016 was (55.5%). In Bangladesh, during 2013, CS rate was (35%). In some of developed countries in Canada the rate increased gradually to reach (28.2%) in 2016. In Italy, the caesarean section rate was (34.2%) in 2015. Caesarean sections are classified according to the urgency as following: Elective caesarean section (scheduled or planned) the decision to do caesarean section may be performed antepartum (Uno et al., 2020).

In addition, the rate of caesarean section in Iraq in 2016 was 33.1 percent, which was greater than the rate in 2012. The rate of CS in 2012 was 15.2 percent, and it grew to 18.7 percent in 2018 but fell in 2019. Decreased somewhat in order to achieve (17.2 percent). The caesarean section rates in Iraq's various governorates in 2018 indicated differences in the rate, ranging from (14.2 percent) (Paksoy & Erbaydar, 2020).

The WHO believes caesarean section rates of 5–15 percent to be the best range for focused delivery of this life-saving intervention to mothers and infants. Lower rates indicate an unmet need, whereas larger rates indicate an incorrect selection. However, total caesarean section rates have risen steadily in many regions of the world. (Zhang & et al., 2010).

Cesarean section percentages for all babies were estimated in 2008 and compared to 2012 rates. In 2012, 24.4 percent of all births in Iraq were via cesarean section, which was similar to rates in Iraq's Kurdistan Region (25.4 percent) and the Center/South (24.4 percent) (24.3 percent). Cesarean

sections were more common in governorates with a larger number of private institutions. (Shabila, 2017).

CS is a significant surgical surgery with potentially dangerous implications that should only be undertaken when precise and well-defined reasons exist. The most prevalent causes of morbidity and death in women undergoing caesarean section are infection and thromboembolic diseases. Approximately 10% of births are deemed high risk, with some requiring caesarean section. The incidence ranges from 4% in Africa to 29% in Latin America and the Caribbean. In recent years, the rate has reached a new high of 46 percent in China, and 25 percent or more in numerous Asian and European nations, as well as Latin America and the United States. (Ahmed and Namir, 2018).

A panel of experts at a World Health Organization (WHO) conference in 1985 declared that "There is no reason why any location should have a caesarean section rate more than 10–15 percent. There is no reason why any location should have a caesarean section rate more than 10–15 percent. Percent." This remark was based on the limited research available at the time, as well as the caesarean section rates seen in northern European nations that had among the lowest maternal and neonatal death rates in the world. Although the international community has long considered this percentage to be the "ideal" caesarean section rate, rates of caesarean section have progressively increased in both developed and developing nations since then. (Betran et al., 2015).

The authors concluded that the global average rate of caesarean section delivery in 2014 was 18.6 percent based on a survey of 150 countries with national-level data on method of delivery and live births (range 6.0 percent -27.2 percent). This percentage varied by area, with Latin America

and the Caribbean having the highest regional caesarean section rate at 40.5 percent, impacted mostly by the South American sub-region, which had the highest rates of caesarean section at 42.9 percent. North America and Oceania had caesarean section rates of 32.3 percent and 31.1 percent, respectively, with Europe coming in last at 25 percent. Asia had the highest caesarean section rate of 19.2 percent, while Africa had the lowest caesarean section rate of 7.3 percent. Globally, the rate of caesarean section delivery is predicted to have climbed by 12.4 percent between 1990 and 2014, with Latin America and the Caribbean and Asia experiencing the greatest absolute increases. (Gondwe, 2018).

Cesarean section rates in Brazil have risen dramatically in recent decades. Estimates from 1970 show that this percentage was at 15%, rising to 38% in 2001 and 48.8 percent in 2008; cesarean sections accounted for 35% of births in the Brazilian Unified Health System and 80% of deliveries in the private sector. In 2009, the rate was 50.1 percent, exceeding the number of vaginal births for the first time. This figure is rising, with cesarean sections accounting for 55.7 percent of all deliveries in 2012. (Mascarello & et al., 2017).

There are various possible explanations for the rising prevalence of caesarean section:

- Changes in the risk profiles of the mother-to-be, including maternal age, obesity, and diabetes are all of these factors are likely to contribute to the increasing incidence of caesarean section.
- In first time mothers, a greater rate of elective Cesarean delivery may lead to caesarean section in later deliveries. (Mascarello et al., 2017)
- An increase in multiple pregnancies as a result of infertility therapies and assisted reproduction may have a role.

- The most prevalent mother request for elective caesarean section is acute and very intense ("tocophobia") dread of spontaneous delivery.
- In many countries, a defensive, risk-averse obstetric practice, as well as doctors' insurance rates, may affect the method of delivery, with elective caesarean section being an appealing option.
- A general increasing desire to avoid danger, as well as modern media flow, are thought to have an essential role (Mylonas & Friese, 2015).

2.3. Mode of delivery used by women at the time of birth

There are two basic birthing methods: caesarean and vaginal. There are two methods to childbirth: one that follows labor and the other that does not. Parturition is the process of preparing to give birth to a baby. As labor progresses, amniotic membranes tear and rhythmic uterine contractions force the baby down into the delivery canal. The cervix, or entrance to the uterus, should gradually efface (thin) and dilate (widen) to accommodate the baby and pregnant tissues (open). This is the first stage of parturition. After the cervix has fully dilated, the mother expels her baby via the birth canal by pushing. Postpartum is the period between the mother's birth and the delivery of the placenta. During the first two phases of parturition, care providers may need to decide whether to perform a caesarean birth or help using devices such as a vacuum or forceps to promote a vaginal delivery. A lack of labor progress or evidence of likely fetal discomfort are common indications for such options. (Amir et al., 2017).

Childbirth is regarded a life-changing experience for most women and families all over the world, but it is also connected with significant hazards, including impairment and even death for mother or child in severe circumstances. In certain underdeveloped nations, the maternal mortality rate

is as high as 450 maternal deaths per 100 000 live births, compared to 9 per 100 000 in some industrialized countries. (Bramer and Tordsson, 2010).

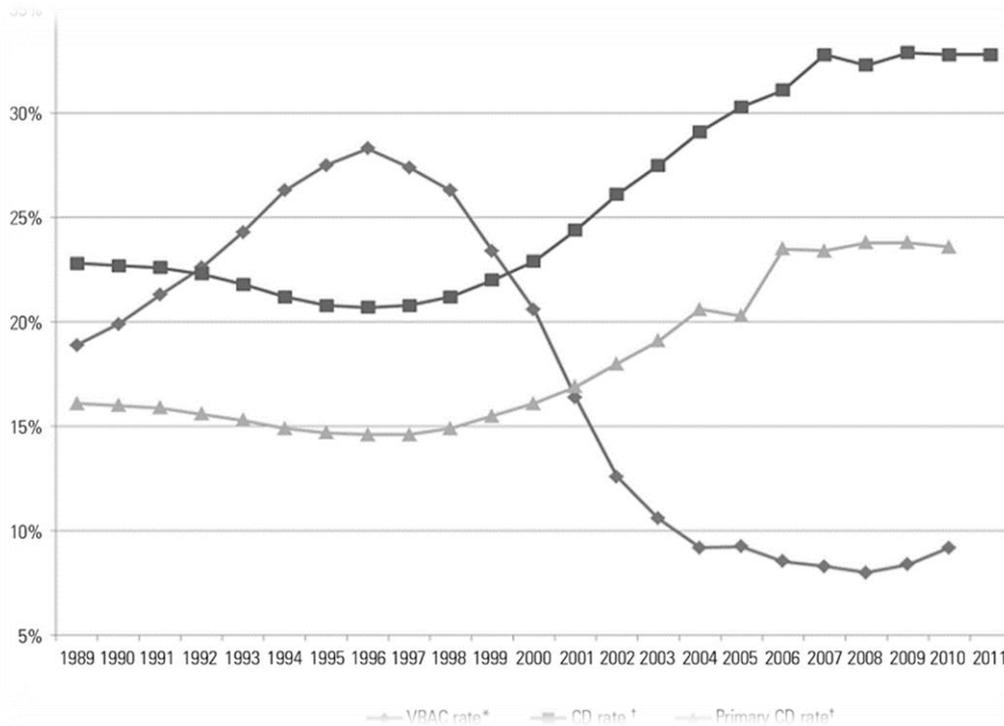


Figure (2-1) Primary and total cesarean rates have lately plateaued, although from 1996 to 2011 there was a substantial increase in the US (Hamilton & et al., 2013).

Obstetricians frequently face the issue of determining the optimum delivery method for both mother and baby. If all independently meaningful characteristics can be utilized to build a prediction model, the best delivery method may be identified. There is debate about whether increasing obstetric interventions such surgical vaginal and caesarean deliveries enhance results. (Shamsa & et al., 2013).

Giving birth naturally, or 'Vaginally', is commonly considered as the norm globally. Alternatively, caesarean section, a surgical incision, has been used to deliver women with medical or obstetric reasons. caesarean section delivery saves lives and reduces direct causes of maternal morbidity and

death include hemorrhage, infections, gestational hypertension, and obstructed labor. Mothers can also select from various delivery methods. Some options for moms include assisted breech deliveries, water births, vacuum births, and scar testing. All of these options have made birthing more personal, satisfying, and fulfilling. (Maalim, 2017).

The major birth methods are vaginal and cesarean. Spontaneous vaginal delivery is often associated many mothers assume they don't need medical aid for a normal birth. Another birth method is caesarean delivery, which some mothers prefer since it eliminates labor agony. (Ghotbi & et al, 2014).

It calms women's fears about delivery. They are also urged by the technique's contemporary day safety. This delivery method's benefits include rapidity and the ability to do a fallopian tube ligation in the same approach. Many had positive outcomes and loved the process's safety (Lavender et al., 2012).

Friends, media, health experts, effective antenatal, dread of delivery, balance between mother's desires, risks of repeat surgery, dangers to her kid during labor, and risks of labor on the strength of the old scar will all influence this decision.(Yilmaz *et al.*2013).

The uterine contractions, the bony pelvis, the soft tissues of the pelvic floor and perineum, and the fetus interact to give birth. Contractions help dilate the uterine cervix and lower the fetus, while 'Cesarean section' is a surgical intervention. To deliver the fetus, an incision is made in the mother's abdomen (laparotomy) and then in the uterus (hysterectomy). (Baker & Kenny, 2011).

Maternal CS follows elective and emergency CS. The complications of maternal were double rates and fivefold. Among the maternal implications

include a longer stay in hospital and an increased chance of recurring pregnancies. The effect of increasing CS rate on lowering newborn problems varies per center. Fetal and neonatal problems include higher mortality, neonatal intensive care unit admissions, respiratory morbidity, as well as mother-infant separation and all of its repercussions. (Khan *et al*, 2021)

2.4. Vaginal delivery

According to the British "Royal College of Midwives and the Royal College of Obstetricians and Gynecologists", a normal birth is defined as follows: The term "normal delivery" refers to women whose labor begins spontaneously, progresses spontaneously, and ends spontaneously. (Young, 2019)

Regular and painful contractions culminate in the delivery of the fetal and placental during normal delivery. Three different phases of labor were identified, with sub-stages in each stage.

- Initial Phase: (0 to 10 cm)

- Inactive stage

- Latent stage

- The Second Phase: decency of the descended portion leading to the fetus's birth

- The Latent (full OS dilatation before commencement for maternal active ejective attempts)

- The Activate (the fetus's evacuation begins with aggressive maternal expulsive attempts)

- The Third phase: evacuation of the placenta (Gill *et al*, .2017)

Vaginal birth has less risks of hemorrhage, infection, and death than C-section delivery. Unlike the drawbacks of protracted, difficult, stressful labor, urine incontinence, fecal incontinence affects 4% of women giving birth. These include perinatal hypoxia, shoulder dystocia, perineal rips, excessive bleeding, irregular fetal heart rate, and premature rupture of membranes (WHO, 2017).

2.4.1 Episiotomy

The vagina must expand during labor to accommodate a grapefruit-sized head. As you may imagine, this requires time. Therefore, if something goes wrong during labor and delivery needs to be hurried along, medical professionals (such as midwives) may quicken the process by artificially expanding the vaginal opening. Using scissors, as the baby's head enters the birth canal, a slit is made in the perineum that narrow region between the vagina and anus—a process known as an episiotomy. It creates an incision that must be stitched closed after the baby is delivered by slicing open the skin, fat, muscle, and dense connective tissue near to the vagina. (Friedman *et al.*, 2015)

Episiotomy is a last-minute incision in the perineum used in vaginal birth. The episiotomy is cut at an angle ranging from 0° for midline episiotomy to 90° for lateral episiotomy (Figure 2-2) (Macleod, 2011).

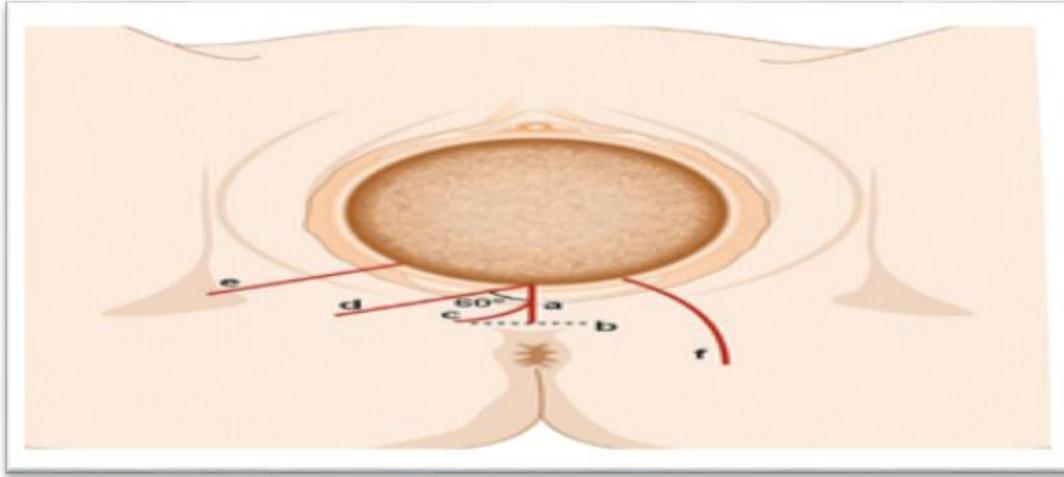


Figure (2-2) Types of episiotomy. Key: a midline episiotomy; b modified median episiotomy; c J-shaped episiotomy; d Medio lateral episiotomy; e lateral episiotomy; f radical lateral (Schuchardt incision) (Kalis *et al* ,2017)

Episiotomy is a surgical procedure to widen the birth canal and aid in fetal head ejection. (There are several forms of episiotomies, three of which are usually utilized. A medial episiotomy is a midline perineum incision near the anus. The Medio lateral episiotomy incision is 40-60 degrees in the anal canal. Incision at 4–5 or 7–8 o'clock, 40–60 degrees distant from the midline. (Zaidan *et al.*, 2018).

Episiotomy is the most frequent midwifery procedure, performed in 15% to 95% of births. Episiotomy was recorded in 90% of underdeveloped nations and 19.4% in the US. No exact figures on episiotomy prevalence in Iran are known, however it is widely used in Iranian hospitals. Due to their small perineum and robust tissue, they are prone to massive perineal ruptures during vaginal birth. (Goodarzi *et al*, 2020).

An episiotomy may be required. However, most typical vaginal births do not require episiotomy. It should only be considered if the perineum is too tight and preventing infant birth. If epidural analgesia is insufficient, consider injecting a local anesthetic. Episiotomy prevents excessive straining

and possibly irregular perineal tissue tear, including anterior rips. The optimal episiotomy incision is one that merely penetrates the skin and perineal body without affecting the anal sphincter muscles (2nd -degree episiotomy). It's easier to fix than a perineal tear. (Ray, 2021).

Sir Fielding Ould originally mentioned episiotomy in 1741 in an article on midwifery. Episiotomy is the surgical expansion of the vaginal aperture by an incision in the perineum (skin and muscles), typically done during delivery using scissors to aid the baby's arrival and avoid spontaneous and severe perineal tearing. (Kettle *et al.*, 2010).

The cause of vaginal tears during delivery is managed, and suitable perineal incisions are made to finish of the second step of labor to facilitate parturition by expanding the vaginal diameter, a procedure known as episiotomy. There are two types: median (from the posterior fourchette to the anus) and medio-lateral (from the posterior fourchette to the anus) (from hymenal ring downwards with at least a 45-degree angle). However, uniformity of episiotomy application and healing remains an issue today (Gün *et al.*, 2016).

Throughout the early twentieth century, episiotomy rates grew considerably. Women were increasingly giving birth in hospitals, and physicians were performing regular, straightforward deliveries. Although episiotomy has gained widespread appeal as a surgical procedure, its benefits were not proven scientifically. Since 2000, reported episiotomy rates have ranged from 9.7% (Sweden) to 100%. (Taiwan). In 2005, Asia's episiotomy rates ranged from 42% to 98%. In 2013, the rate in China was 82%, in Vietnam it was 86%, and in Hong Kong it was 86%. In 2001, 91 percent of nulliparous women in Nepal and 98 percent in Hong Kong had episiotomies. (Schantz *et al.*, 2015)

In some regions of the world, particularly the Middle East, the rate of episiotomy is quite high, sometimes exceeding 50%. Similar rates have been observed in the United States of America. Rates of up to 99 percent have been observed in various Eastern European nations. In comparison, the Netherlands has an episiotomy rate of only 8%, while the UK has a rate of 14%. Episiotomy was performed at a rate of 14.4 percent on average in Australia in 2008, ranging from 8.5 percent in the Northern Territory to 20.4 percent in Victoria. (Hussein, 2014).

2.4.2. Complications associated with VD

2.4.2. A. Bleeding excessively (Hemorrhage during labor)

Hemorrhage during labor continues to be a leading cause of maternal death and morbidity, and in resource-rich nations, the incidence of hemorrhage during labor and related morbidity has increased temporally in recent years. Individual risk factors for hemorrhage during labor have been established for a long period of time, but their relative relevance has been unclear, and so the possibility for prophylactic treatments is uncertain (Briley, 2014).

In 2017, around 295,000 women died during pregnancy and delivery (uncertainty interval: 279,000-340,000). The median maternal mortality rate (MMR) is 211 every livebirths (interquartile range: from 100 to 243), and a 15-year-old girl's lifetime risk of dying from a maternal death is 1 in 190. Women living in least developed nations bear a disproportionate share of the burden of maternal mortality. Africa's Sub-Saharan accounts for 2nd to 3th of all mother fatalities worldwide (196 thousand), with a maternal mortality rate of 542 births for every 100,000 livebirths, and 1 in 37 lifetime risky due to maternal death (WHO, 2019) & (Alkema *et al.*, 2015).

Around 80% of maternal fatalities are due to five directly avoidable obstetric problems: obstetric hemorrhage, hypertension disease of pregnancy, septicemia, abortion, and labor was hampered. Maternal fatalities are caused indirectly due to post medical problems, infections, anemia, also, other illnesses aggravated by pregnant woman. The intrapartum and postpartum period periods (within 24 hours) account for a quarter of all maternal deaths, while the postpartum period accounts for more than half. Period, most of which are caused by problems during labor (Kassebaum *et al.*, 2014).

The most common cause of postpartum Hemorrhage (PPH) is believed to be uterine atony, or the uterus failing to completely contract following placental birth. PPH caused by uterine atony is a significant avoidable cause of maternal morbidity and death, particularly in underdeveloped countries. (Sentilhes *et al.*, 2008).

In comparison to PPH, mothers are at a greater risk of developing a variety of. PPH can cause minor anemia, weariness, sadness, and feelings of separation or worry in mild instances (Dunning *et al.*, 2016).

Significant Severe anemia, liver failure, Acute Respiratory Disorder Syndrome, blood transfusions, open surgeries, intensive care unit treatment, disseminated intravascular thrombosis, hysterectomy, and cardiogenic shock are all possible consequences. Advancements in maternal health care services include an increase in institutional births, the availability of competent birth attendants at all births, and the practice of active labor management, which decreases the incidence of PPH, blood loss, and the need for blood transfusions. Despite this, PPH remains the major cause of maternal death. PPH estimation is necessary for the implementation of

treatments aimed at reducing the risk of maternal mortality and morbidity. (Kebede *et al.*, 2019).

Six out of ten occurrences of PPH are preventable with the use of an evidence-based strategy known as "Active Management of Third Stage of Labor ". WHO and professional mother organizations advocate doing "Active Management of Third Stage of Labor during each birth. The most often used uterotonic medication is oxytocin, which is followed by temperature carbetocin, cytotec, and ergon ovine (WHO, 2018).

The "Active Management of Third Stage of Labor procedure entails providing a uterotonic medication, delaying cord clamping (with 1-3 minutes after birth), controlled cord traction to release the placenta, and uterine massage In compared to the third stage of labor's expectant therapy , "Active Management of Third Stage of Labor considerably minimizes Irrespective of maternal risk group, blood loss and subsequent transfusion are required .(Begley *et al.*,2019).

Along with prevention, health care providers must be can recognize sever bleeding with the source of the bleeding. This is a difficult subject, made more difficult by the absence of uniform and conventional procedures for measuring blood loss. Collector bag and weighted drapes, as well as hematocrit level measurement. Visual assessment losing of blood, which is frequently employed in low and middle developing countries is inexact Also after provider training, blood loss metrics are frequently overestimated when compared to other techniques such as blood bags and drapes. (Lertbunnaphong *et al.*, 2016).

Along with volume loss, the researchers emphasize the necessity of analyzing the pace of blood loss and the patients' clinical status, including a measure of shock. Once a woman gets PPH, she must be managed by

resuscitating her hemodynamic instability and addressing the particular source of bleeding. Alternatively, medically (oxytocic drugs, tranexamic acid). Or, if necessary, surgical intervention (intrauterine balloon tamponade, laparotomy for B-lynch sutures, closure of the internal iliac artery, or hysterectomy) (Althabe *et al.*, 2020).

2.4.2. B. Labor is obstructed

Obstructed labor is described as the inability of the fetal presenting portion to descend into the birth canal owing to mechanical factors, insufficient uterine contraction, or both. This results in a variety of mother and fetal outcomes. (Kabakyenga, 2011).

Maternal mortality trends from 1990 to 2013 show a 45 percent drop in the maternal mortality ratio (MMR) in all Millennium Development Goal (MDG) regions throughout the world. However, MMR is still prevalent in 183 countries, with a rate of 210 per 100,000 live births or 289,000 maternal fatalities. From this, developing nations account for 99 percent of maternal mortality, with Sub-Saharan Africa accounting for 62 percent of maternal deaths (WHO & UNFPA, 2015).

In 2011, the incidence of protracted labor was estimated to be 12.2 percent in Ethiopia and 3.7 percent in Rwanda, respectively (Kalisa, 2016).

Obstructed labor resulted in a variety of maternal outcomes, including uterine rupture, postpartum hemorrhage, puerperal infection, Vesico-Vaginal fistula, and recto-vaginal fistula, which can result in death. Aside from fetal outcomes such as birth asphyxia, stillbirth, neonatal jaundice, and umbilical sepsis, neonatal jaundice and umbilical sepsis can occur. (Kip, 2013)

When obstructed labor is ignored or help is delayed, complications to the mother and fetus worsen. Fistula, postpartum hemorrhage, shock, paralytic ileus, sepsis/infection, urinary tract infection, uterine rupture, and death to the mother, as well as newborn sepsis birth trauma to the face or the presenting parts, severe hypoxia, jaundice, and neonatal mortality, are some of the outcomes. PPH, stillbirth, perinatal death, and cesarean delivery were all much more common in multiparas (Mondal *et al.*, 2013 & Berhan & Berhan, 2014).

Obstructed labor is a completely avoidable labor problem. Obstructed labor can be avoided by: controlling labor and delivery with skilled labor, using the partograph, birth preparation and complication readiness, nutritional education, and postponing early marriage (Shiferaw & Toma, 2019).

2.4.2. c. Prolonged labor (Failure to progress)

Protraction disorders (meaning delivery is proceeding but at a slower pace than normal) and arrest disorders are the two types of first and second-stage anomalies (complete cessation in progress). Placenta retention over 30 minutes is considered abnormal third-stage labor, as most third phases are completed within the first 10 to 20 minutes of birth. Regular, painful uterine of strong contractions characterize normal labor, which leads to progressive labor. labor patterns are split into two categories: 1st- stage abnormalities (cervical dilated to fully cervical dilation) and 2nd-stage abnormalities (descended of the presenting part of fetus leading to deliver of the baby). The placenta's expulsion is explained in the third stage of labor. All stages of labor are included in a summary of labor abnormalities. (Clark *et al.*, 2018).

Protraction or arrest disorders are labor patterns that are aberrant in the first and second phases. Prolonged labor phases imply that labor is

moving forward, although at a slower rate than predicted. Arrest disorders signify a total halt in the progression of labor. When the placenta is retained for more than 30 minutes, abnormal third-stage labor necessitates intervention. When classifying the labor as, keep the following factors in mind. (Gill *et al*, 2021).

Protraction and Arrest in the First Stage

The "Latent Phase"

Lengthening:

- With the women how nulliparous, the actively phase had not started with 20 hours following the commencement of the Residual phase.
- With women how multiparas, the active phase had not commenced 14 hours after the latent phase began.

Latent phase stoped is not considered a clinical entity due to its sluggish development.

The Active Phase

Women with a dilation of 6 cm, dilating at a pace of less than 1 to 2 cm/hour. A patient with ruptured membranes and arrest had a cervical dilation of 6 cm.

- The cervix remained unchanged for 4 hours despite significant contractions (measured as >200 Montevideo units).
- Despite inadequate contractions, there was no change in the cervix for 6 hours.

The " Second Stage "of Protraction

The diagnosis does not have a set length. The following criteria may be considered in the situation of favorable maternal and fetal conditions:

- The second stage takes more than four hours, or three hours for nulliparous women.
- During multiparous women, more than three hours for the second stage or two hours of pushing. (Gill *et al.*, 2021)

Labor dystocia (prolonged labor) can develop during the active first or second stages of labor. Dystocia affects 21-37 percent of nulliparous women and 2-10 percent of parous women. The disease is linked to a greater risk of maternal morbidity and instrumental vaginal births, and it is the most prevalent reason for a primary caesarean section. The effects of second stage length on newborn outcomes are largely unknown. Dystocia typically affects nulliparous women, however the likelihood of recurrence in subsequent labor has never been studied. (Sandström, 2016)

Abnormal labor is one of the most prevalent obstetric complications, accounting for around 20% of all births. Approximately 68 percent of unnecessary cesarean sections were reported to be caused by prolonged labor progression in vertex presentations. Normal labor can occur at any stage of labor as a latent first stage disorder, an active first stage disorder (prolonged or stopped cervical dilatation or descent), or a second stage problem (prolonged or arrest of descent). Labor is classified as obstructed when the presenting part of the fetus is unable to descend and is stuck in the delivery canal for an extended amount of time despite appropriate uterine contractions. (Abraham and Berhan, 2014).

2.4.2.d. Shoulder dystocia and dystocia

Dystocia is a term derived from the Greek word "tokos," which meaning "difficult birthing" (1). Dystocia is predicted to occur in 4.8 percent to 21 percent of vaginal births, and according to the American College of Obstetricians and Gynecologists in 2003, around 60 percent of cesarean deliveries in the United States were performed. The five factors mentioned below account for more than 70% of all maternal deaths: (a) bleeding, (b) infection, (c) unsafe abortion, (c) high blood pressure, and (d) dystocia are all considered preventable complications. In addition, birth injuries caused by difficult childbirth, maternal deaths (which account for 8% of all maternal deaths), increased bleeding during and after delivery, infection of the fetal membranes, uterine and vaginal canal rupture, pelvic trauma, and secondary infertility are all linked to dystocia diagnosis. (Akhlaghdoust *et al.*, 2014).

In addition, many injuries and birth complications have been documented as a result of difficult childbirth, including skull, clavicle, humers, and femur fractures, glen humeral joint dislocation, liver and spleen bleedings, nervous system injury and upper limb extremity of motion, newborn asphyxia, and low Apgar scores. (Eleje *et al.*, 2011).

Shoulder dystocia is a rare but potentially dangerous complication of vaginal birth in which the fetal shoulders fail to deliver spontaneously after the head exits. Its exact incidence is difficult to determine due to the many classifications used in the literature and confusion regarding how frequently it is reported in medical records. Estimates vary from 0.15 to 2.0 percent. Although most occurrences of shoulder dystocia may be treated without leaving the neonate with long-term consequences. Complications include different degrees of brachial plexus injury, hypoxia or traumatic central nervous system damage, and lengthy bone fractures. Maternal hardship

manifests itself in the form of lacerations, bleeding, and psychological stress. BPI occurs in around 1–20% of instances (BPI), of shoulder dystocia (Hill, & Cohen, 2016).

Shoulder dystocia is mostly a mechanical issue. The typical gynecoid pelvis has an anteroposterior diameter of 12 cm and a transverse diameter of 13 cm at the intake. A typical sized fetus has an acromial diameter of 12–15 cm. The shoulders are normally in the anteroposterior diameter above the pelvic inlet, but they cross it in the wider transverse diameter. Despite the fact that the acromial diameter is frequently greater than the transverse diameter of the pelvic inlet, there is generally no blockage because the shoulders are compressible and are pushed forward toward the fetal chest. It. (Youssef *et al.*, 2019).

In most cases, the fetal shoulders have crossed the pelvic inlet through valve entry. Anteroposterior diameter or slightly oblique shoulders will not pass through the entrance until the following uterine contraction, which corresponds with maternal pushing. The use of downward tension on the head may impede with shoulder rotation at the inlet, resulting in shoulder dystocia. Occasionally, a mechanical impediment occurs. Shoulders may not be able to pierce a normal-sized pelvis if the chest circumference and acromial diameter are too big. Shoulder dystocia is most commonly caused by a big fetus trying to fit through a normal sized pelvis. Rarely, a normal-sized fetus tries to enter through a tiny pelvic opening. To pass the shoulders via an 11-12 cm pelvic opening, the fetus must weigh 3,700 g. (Menticoglou, 2018).

Shoulder dystocia is defined as the delayed or problematic birth of the fetal shoulders after the delivery of the fetal head. Shoulder dystocia occurs when the fetal shoulders do not pass via the oblique dimension of the

pelvic inlet, which is the most advantageous, but rather through the anterior-posterior dimension, which is smaller (Figure 2-3). If the shoulders enter the pelvic inlet through the anterior-posterior dimension, the anterior shoulder above the symphysis may get impinged. Impaction of the posterior shoulder on the sacral promontory is also possible, although is probably less common. A mechanical blockage induced by a difference in the size of the pelvic inlet and the fetal shoulders is the result of both anterior and posterior impaction. Shoulder dystocia is caused by impaction of the anterior, posterior, or both shoulders over the pelvic inlet (Øverland, 2014).

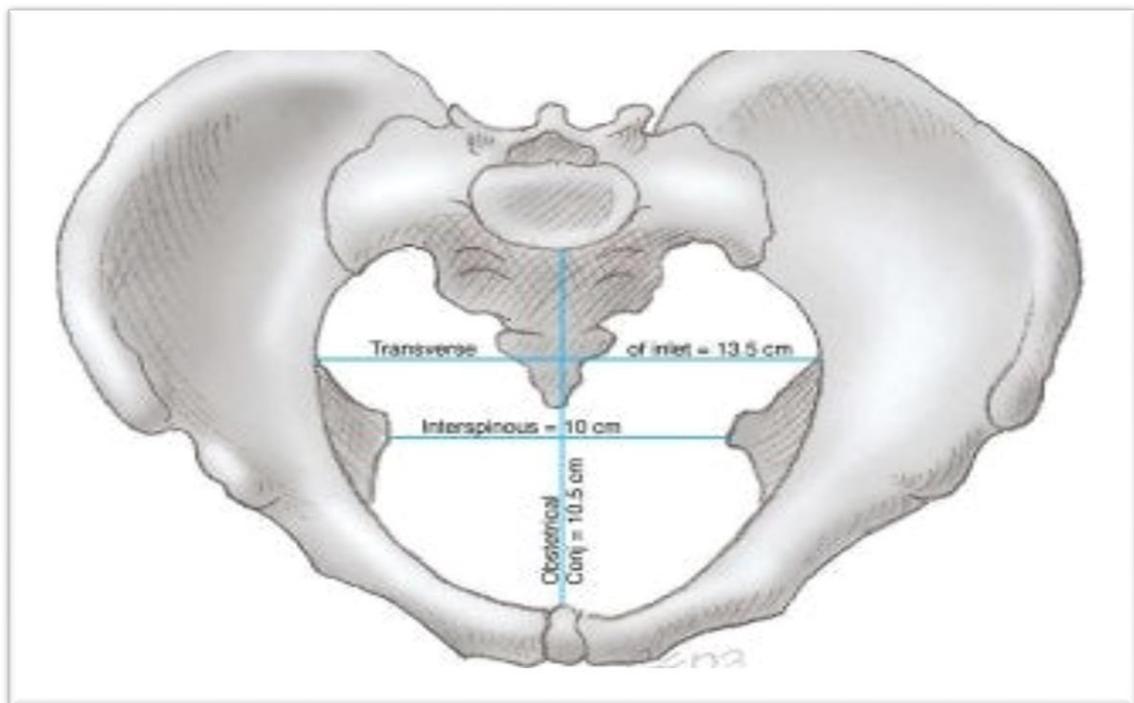


Figure (2-3) View of the human maternal pelvis from below (Øverland, 2014).

2.4.2. e. Lacerations of the perineum

The perineum is made up of the soft tissues that make up the pelvic outflow. The female perineum is divided into two triangular sections by an imaginary line drawn between the ischial tuberosities. It is superficial to the

musculotendinous layer of the pelvic diaphragm (pelvic floor). The anterior urogenital triangle is formed by the superficial transverse perineal, bulbospongiosus, and ischiocavernosus muscles and is traversed by the urethra and vagina. The posterior anal triangle is comprised of the anal canal's terminal part and the anal sphincter complex. Between these separate triangular sections lies the perineal body's fibromuscular mass, which includes the entangled fibers of the superficial transverse perineal, bulbospongiosus, and external anal sphincter muscles on the superficial level and the levator ani muscle on the deeper level. The levator ani, a wide muscle sheet that supports the pelvic contents, is split into three sections based on their attachments to the internal surface of the pelvic sidewall: the iliococcygeus, pubococcygeus, and ischiococcygeus (D'Souza, 2020).

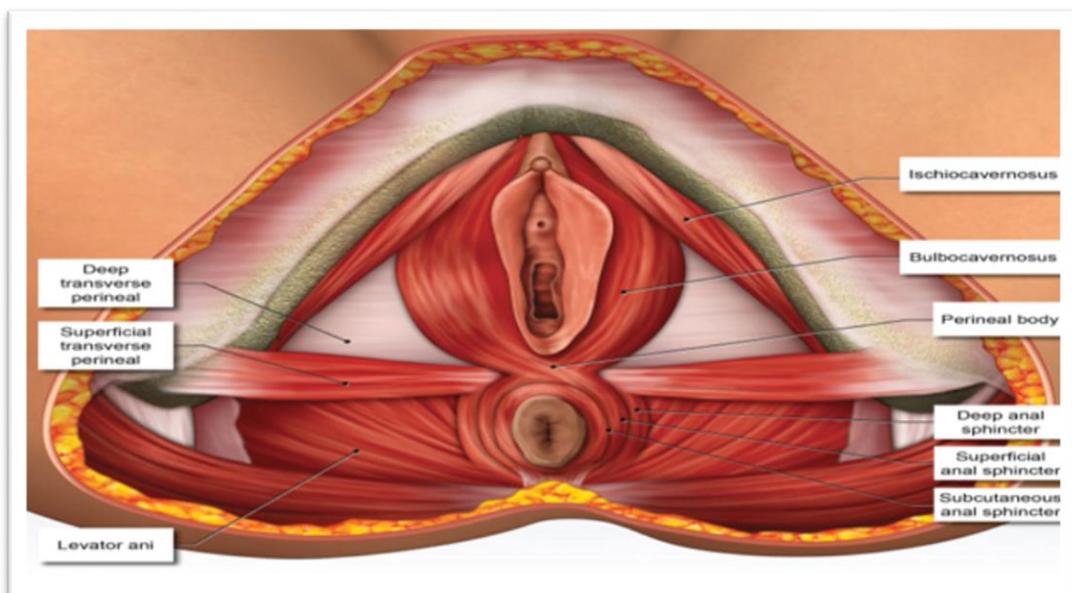


Figure (2-4). The Female Perineum is depicted (D'Souza, 2020).

Following vaginal birth, obstetric perineal lacerations are frequent. The extent of tissue implicated in an obstetric perineal laceration defines the degree of the laceration. When a perineal laceration occurs during vaginal

birth, it is critical to do a diagnostic evaluation before to performing primary suturing (Pihl, 2019).

Perineal damage occurs in between 30% and 85% of laboring women, and around 60% to 70% of these women will require suturing following childbirth¹. It is connected with both acute and chronic morbidity. Postpartum flatus and fecal incontinence, perineal discomfort, sexual problems, pelvic floor muscular weakening, and uterovaginal prolapse are among these morbidities. Occasionally, maternal death can be attributed to infections that arose during the healing phase of the perineal tear (Helen *et al.*, 2011).

Vaginal and cervical expansion should proceed gradually for a successful vaginal birth, and the tissue should be allowed to extend properly. At this point, spontaneous tears may occur with fast descent, most notably during the fall of the fetal head and the creation of vaginal dilatation. Even while these tears, as Fernando classified them, most usually involve the perineal skin and mucosa (1st degree), they may also include the perineal muscle (2nd degree), the anal sphincter complex (3rd degree), and the anal mucosa (4th degree). Between the vagina and the anal canal lies the perineal body. It is composed of thick connective tissue that encompasses the perineal membrane's superficial and deep muscles (Stein & DeLancey, 2008). Includes the transverse perineal muscle, puborectalis muscle, and bulbospongiosus muscle attachments (Wagenlehner *et al.*, 2013).

The pelvic floor muscles all join to the perineal body and their functions are interdependent, much like spokes on a wheel. The bulbospongiosus muscle wraps around the vaginal introitus and joins frontally to the clitoris and rectally to the perineal body. The transverse perineal muscle travels laterally from the pelvic bone to the perineal body,

lifting the perineal tissues cranially in the process. The puborectal muscle is mostly utilized to compress the pelvic floor voluntarily and wraps around the anal canal as a sling. This muscle is capable of lifting the pelvic floor and anal canal forward and upward. (Pihl, 2019).

Historically, perineal tearing was categorized into four categories, with third and fourth degree tears referred to jointly as Obstetric anal sphincter injuries:

- First degree tear – laceration of the vaginal epithelium or perineal skin only;
- Second degree tear – first degree tear plus involvement of the perineal muscles but not the anal sphincter muscles;
- Third degree tear – disruption of the skin, mucous membrane, perineal body, and anal sphincter muscles; or
- Fourth degree tear – third degree tear plus involvement of the anal epithelium. (Aasheim et al., 2017)

Reclassification of perineal injuries sustained during labor

1. First degree Injury to the perineal skin in the first degree
2. Second degree :Injury to the perineum in the second degree, including the perineal muscles but not the anal sphincter
3. Third degree Injury to the perineum in the third degree affecting the anal sphincter complex:
 - 3a: External anal sphincter less than 50% torn
 - 3b: External anal sphincter ruptured by more than 50%
 - 3c: Tears in both the external and internal anal sphincters

4. Fourth degree: Injury of the perineum in the fourth degree, affecting the external and internal anal sphincters, as well as the anal epithelium. (Wilson & Homer,2020).

2.4.2. f. Laceration of the cervical spine

Cervical injuries are a common complication of vaginal births. Cervical lesions occur more frequently during pregnancy in situations of null parity, preterm labor, operative vaginal birth, and cervical surgical procedures such as cervical cerclage. Additionally, inducing labor raises the likelihood of cervical injury. (Djokovic *et al.* 2015)

Cervical laceration and tear is one of the problems associated with vaginal birth. It is most likely caused by local prostaglandins used for labor induction or by inappropriate forceps application, rarely resulting in significant postpartum hemorrhage demanding hysterectomy in a few cases. (Devkota *et al.*, 2015)

Cervical injuries are a common complication of vaginal births. Cervical lesions occur more frequently during pregnancy in situations of null parity, preterm labor, operative vaginal birth, and cervical surgical procedures such as cervical cerclage. Additionally, inducing labor raises the likelihood of cervical injury. (Landy *et al.*, 2011)

In women with a medical history of cervical procedures, spontaneous births through intrapartum cervical lesions have been observed. These include a loop electrosurgical excision technique for cervical intraepithelial neoplasia and a cervical cerclage operation following a prior pregnancy. The rip resulted in spontaneous birth of the fetus through the lesion, as well as effective treatment of postpartum hemorrhage using the lesion suture. (Chan *et al.*, 2012).

2.4.2. g. Uterine rupture

Uterine rupture occurs when the uterine wall tears and its integrity is compromised during pregnancy, birth, or the early postpartum period. In obstetrics, it is a catastrophic occurrence that frequently results in severe maternal and fetal outcomes. Additionally, it may expose women to negative consequences such as irreversible infertility as a result of hysterectomy (Astatikie *et al.*, 2017)

Uterine rupture occurs when the uterine (womb) wall tears during pregnancy or early labor. Uterine rupture causes abnormal fetal heart rate, stomach discomfort, and vaginal bleeding. If a woman's uterus ruptures during childbirth, she needs an emergency caesarean section to preserve both her and her baby's lives. The woman's womb and associated organs may be damaged or removed during surgery, necessitating a blood transfusion. Her baby may also have RDS or other potentially deadly issues. In high-income countries, women who have had a prior caesarean section are more prone to uterine rupture. During a caesarean section, an incision is made in the abdominal and uterine walls to deliver the baby. Pregnancy-induced stretching or severe labor contractions may tear the surgical scar, causing uterine rupture. (Fitzpatrick *et al.* 2012)

Uterine rupture is one of the most common per partum complications, accounting for approximately one in every thirteen maternal deaths, while those who survive have acute and long-term consequences. (Egbe *et al.*, 2016).

Maternal mortality rates continue to be unacceptably high in a large number of developing countries, in Sub-Saharan Africa and South Asia, in particular Sub-Saharan Africa and South Asia account for more than 87

percent of maternal fatalities, as measured by the worldwide maternal mortality ratio of 210 deaths per 100,000 live births in 2013. (WHO, 2014)

Uterine rupture does not result in just short-term difficulties; it also results in long-term issues, maternal and perinatal death. While uterine rupture adds to maternal mortality, there is a lack of comprehensive information demonstrating the prevalence and risk factors for uterine rupture in order to prevent and save lives in health institutions. (Getahun *et al.*, 2018).

Maternal symptoms vary in their severity. If persistent abdominal discomfort and symptoms of intra-abdominal bleeding are evident, uterine rupture should always be highly evaluated. Vaginal bleeding is not a necessary symptom, as it may be minimal in the face of significant intraabdominal hemorrhage. However, case reports and series reveal that pain may not be present in a quantity, type, or location sufficient to indicate uterine rupture. Additionally, maternal tachycardia, hypotension ranging from mild to severe (hypovolemic shock), cessation of uterine contractions, loss of station of the fetal presenting section, uterine discomfort, and change in uterine shape are possible clinical symptoms. Intuitively, loss of uterine wall integrity should result in a decrease in intrauterine pressure. (Mengistie *et al.*, 2016).

2.4.2. h. Intrapartum fetal deaths

Intrapartum fetal death, defined as the death of a fetus during labor, is a devastating pregnancy result. The intrapartum death rate of a nation is a reflection of the care provided to women and babies during labor, and it is through analysis of these instances that both excellent and bad features of treatment may be recognized. the newborn fatalities that may be related to an intrapartum incident is also beneficial in determining the cause of death (McNamar *et al.*, 2018)

Globally, intrapartum fetal fatalities impose a significant strain on healthcare, with an estimated 1.3 million newborns dying each year during labor. Although the frequency of intrapartum fetal deaths (IPDs) in high-income nations is low (0.3–0.7/1000 deliveries), each one has a severe effect on the parents and healthcare workers involved. Evaluate postpartum care. Lawn *et al.*, 2016; O'Connell *et al.*, 2016; McNamara *et al.*, 2017).

It is widely believed that an institution's or country's intrapartum mortality rate is a reflection of the care given to women and infants during labor, and that increasing access to and usage of high-quality, evidence-based intrapartum care is one strategy to further lower intrapartum death rates. (Manning *et al.*, 2018).

Only by evaluating these situations can positive features of treatment and opportunities for improvement be found. Additionally, studying unexpected newborn fatalities that may be related to an intrapartum incident aids in the comprehensive evaluation of intrapartum care, and data indicates that improving intrapartum care can also help minimize unexpected neonatal deaths. (Lawn *et al.*, 2014; Robertson *et al.*, 2017).

2.4.2. i. Inversion of the uterus during vaginal delivery

Uterine inversion is the process by which the uterine fundus passes through the endometrial cavity and cervix, inverting the uterus. Although uncommon, this can arise in two separate clinical scenarios: postpartum and spontaneously. Non-puerperal uterine inversion accounts for 5% of all uterine inversions and is often linked with malignancies of the uterine cavity that have externalized. (Fofie & Baffoe, 2010).

Uterine inversion is a potentially life-threatening complication of delivery. This term refers to the fundus collapsing into "into the uterine

cavity." Despite its rarity, it is linked to a considerable risk of mortality due to bleeding and shock. Therefore, this activity focuses on the pathophysiology, causation, and manifestation are all terms that have been used to describe the pathophysiology of a disease. And treatment of uterine inversion promotes importance of the multidisciplinary team in caring for individuals with this disease. (Thakur *et al.*, 2020).

Uterine inversion is a rather uncommon cause of obstetric emergency. The incidence ranges substantially, ranging from one case per 2000 births to one case per 50,000 births. Due to the rarity and severity of this postpartum issue, it has academic significance. When not detected early, the significant and frequently underestimated blood loss can result in hypovolemic shock and maternal fatality rates of up to 15% in certain series. The optimal management choices for this condition are unknown, because to the limited expertise of each obstetrical team addressing this sort of circumstance on a global scale. The literature describes a variety of treatment techniques, including medications, manual movements, and surgical approaches. (Leal *et al.*, 2014).

Uterine inversion is an uncommon complication that occurs in around 1 in 2000 to 1 in 23,000 births. Ironically, the majority of these are encountered during "low-risk" births. In India, the incidence is thrice that of the United States. After introducing aggressive care during the third stage, the incidence of uterine inversion fell fourfold (Thakur *et al.*, 2020).

The degree of uterine inversion is determined by the location of the uterine fundus. The fundus is contained inside the cavity in the first degree. It is a second degree inversion if it reaches but does not surpass the cervical external OS. When the fundus spreads beyond the external OS, a third degree

inversion develops. When full inversion occurs beyond the vaginal introits, it is referred to be 4th degree uterine inversion. (Repke *et al.*, 2013).

The following were some of the risk factors for uterine inversion: The two most often proposed etiologies for uterine inversion are excessive umbilical cord traction in combination with placental fundal attachment and fundal pressure in a relaxing uterus. Rapid labor, an invasive placentation, manual placenta revocation, a short other umbilical cord, uterine relaxants using , uterus hypertension, fetus macrosomia, null parity, placenta Previa, "connective tissue disorders (Marfan syndrome and Ehlers-Danlos syndrome)", and a history of uterus inversion during a previous pregnancy are all additional risk factors for uterine inversion. However, since in the vast majority of cases, no risk factors are identified, this condition is unexpected. (Free *et al.*, 2019; Vieira *et al.*, 2019).

Degrees of Uterine Inversion

- Incomplete inversion: inverts the fundus but does not Perforation in the internal OS
- Complete inversion: The fundus's inner lining passes through the cervical OS, and cannot palpably fundus at the abdominal level.
- Prolapsed inversion: The entire uterus comes out of the cervix, with the fundus coming out of the introits. (Wendel *et al.*, 2018).

Classification

- Acute: within twenty-four hours of childbirth
- Subacute: within twenty-four hours of delivery Postpartum period greater than 24 hours)
- Chronic: >1 month postpartum. (Eddaoudi *et al.*, 2018)

When the fundus is not palpable abdominally, the inversion of the uterine is a clinical diagnosis that should be looked into. The abrupt commencement of rapid vaginal bleeding results in the mother's hemodynamic instability. Historically, shock has been regarded excessive in relation to losing blood, so that may be effected by parasympathetic nerves activation induced through tissue extending. However, it is critical to do a thorough assessment of the requirement for blood transfusions, as blood loss is substantial and sometimes underestimated. Other symptoms include intense lower abdomen discomfort and a powerful bearing down on feeling, however, Because of their shock, the majority of women may be unable to complain. It can happen before to or following placenta separation. (Wendel *et al.*, 2018).

2.4.3 Complications after Vaginal delivery

2.4.3. A. Hemorrhage postpartum (PPH)

After birth, there are two types of bleeding. Primary hemorrhage (during the first 24 hours) or secondary hemorrhage are the two types of PPH (between 24 hours and six weeks). Historically, main PPH has been described as a "blood loss expected to be greater than 500 mLs per vaginal within the first 24 hours after birth." Primary PPH following caesarean section is characterized as a blood loss of at least 1000 mLs. PPH can be mild (500-1000 mls) or severe (1000 mls) (more than 1000 mls). Major is further subdivided by moderate (1000-2000 mls) and severe (more than 2000 mls). (Aflaifel, 2015).

The WHO norm of 500 milliliters is becoming obsolete since mothers' blood loss effects vary. Even a small amount of blood loss can be fatal for very anemic women. This is crucial for moms in poor countries where many women suffer from severe anemia. Additionally, McCormick and colleagues

have stated that the standard diagnosis of PPH is not clinically useful, as it is frequently difficult to accurately determine the volume of blood lost by a woman. Additionally, blood may be combined with amniotic fluid or urine, or it may be strewn about on sponges, linens, or the floor. PPH frequently goes undiagnosed, particularly with slow trickling blood flow, resulting in an underestimate of blood loss during delivery. For these reasons, a more precise definition of PPH would include any quantity of bleeding that results in a change in the woman's state for the worse (e.g., low systolic blood pressure, quick pulse, indications of shock) (McLintock, 2020).

Which is also the preferred term of the "International Federation of Gynecology and Obstetrics' FIGO" most recent recommendations on the prevention and management of pelvic inflammatory disease (PPH). There are other diagnostic criteria for the diagnosis of PPH. These include a hematocrit reduction of more than 10% from pre-pregnancy levels, necessitating blood transfusion and resulting in hypovolemia-related signs and symptoms. Changes in hemoglobin concentrations, on the other hand, are not a clinically useful 19 definition because rapid blood loss may precipitate a medical emergency prior to the observation of a fall. (Lalonde&Amanda, 2012).

PPH is typically defined as blood loss of more than 500 mL in the first 24 hours following vaginal birth, and That is the greatest lead to maternal death, about roughly a quarter of all maternal fatalities globally. In low-income nations, the risk of maternal mortality from PPH is roughly 1 in 1,000 births. PPH can be caused by anemia, blood transfusion, coagulation deficiencies, renal failure, hysterectomy, or infertility (Carroll *et al.*, 2008).

Obstetric haemorrhage is the world's leading cause of maternal mortality, responsible for an estimated 127 000 deaths annually. Postpartum haemorrhage (PPH) is the most common type of obstetric haemorrhage and

accounts for the majority of the 14 million cases that occur each year. (WHO, 2012).

More than half of these deaths occur in little-resource nations, where 45 million women give birth each year without the assistance of a qualified delivery attendant. Maternal mortality from PPH is extremely rare in high-resource nations such as the United Kingdom (UK). The reported incidence of severe PPH, on the other hand, is growing, and it is the most reason of severe maternal morbidity. Postpartum hemorrhage is mostly prevented by active management of the third stage of labor, which is frequently implemented in resource-rich nations (Hancock, 2017).

In comparison to PPH, Mothers are more likely to experience severe anemia, liver failure, Acute Lower respiratory tract Distress Syndrome, the need for blood transfusions, open surgery, intensive care unit treatment, disseminate intravascular thrombus, hysterectomy, and cardiogenic shock, among other consequences.. PPH can cause minor anemia, weariness, sadness, and feelings of separation or worry in mild instances (Mousa *et al.*, 2014)

The most common cause of PPH is uterine atony, which accounts for 90% of all cases and is largely avoidable with aggressive labor management and the administration of utero-tonic medications following delivery (Bishanga *et al.*, 2018).

The hormone oxytocin is beneficial at inducing labor and preventing PPH (WHO, 2014 & WHO, 2018).

2.4.3. b. Acute anemia

The postnatal period is essential for both moms and newborns. Even though the majority of mother and newborn mortality happen during this

time period, is greatest underserved time for providing high-quality carefulness, particularly in low-resource nations (WHO, 2013)

Nonetheless, as deduced from the definitions provided by several researchers, when hemoglobin levels are 11 gm/dl after one week and 12 gm/dl after eight weeks, postpartum anemia (PPA) occurs. (Sivahikyako *et al.*, 2021)

Mild anemia is defined as hemoglobin levels of 10–10.9 gm/dl, whereas moderate and severe anemia are defined as hemoglobin values of 7–9.9 gm/dl and 7 gm/dl, respectively. Additionally, although though there is no universal consensus on the optimal time to assess postpartum hemoglobin levels, it is generally suggested to do so on the first postpartum day (Api *et al.*, 2015)

The World Health Organization (WHO) defined postpartum anemia in non-pregnant women as a hemoglobin (Hb) level of 12 g/dL. However, it is difficult to obtain a universally recognized definition for more stringent criteria such as Hb11g/dL4 or even 10 g/dL. (WHO, 2017)

Postpartum anemia is a significant public health concern with a high global prevalence. Within 48 hours following giving birth, it is believed that between 50% and 80% of women develop anemia. The consequences are particularly severe in low-income nations, where it is associated with other pathological processes and is also a major cause of maternal death. (Rubio-lvarez *et al.*, 2018).

Each year, almost half a million women die as a result of pregnancy and delivery difficulties. Sub-Saharan Africa, which accounts for the bulk of maternal mortality, has a 175-fold chance of dying during childbirth compared to industrialized countries. Postpartum hemorrhage, defined as excessive bleeding (>500 mL) following childbirth, is the main cause of

maternal mortality in Africa and other underdeveloped nations. Childbirth and the immediate postpartum period are significant times in a woman's life since the majority of maternal deaths occur during labor, delivery, and the immediate postpartum period, with the risk of mortality being especially high in the first days following birth (Kavle *et al.*, 2008)

In industrialized nations, the prevalence of anemia among postnatal moms is between 10% and 30%, whereas in underdeveloped countries, the incidence ranges between 50% and 80%. Despite Ethiopia's 2020 objective to reduce anemia, postpartum anemia in lactating mothers grew from 18% in 2011 to 28.6% in 2016. Maternal problems were caused by blood loss and anemia. Postnatal moms lose a substantial quantity of iron during labor and delivery. (WHO, 2017).

2.4.3. c. Infections postpartum

Worldwide Postpartum infections are one of the primary causes of maternal morbidity and maternal death. The most common postnatal infections include breast infection, endometritis, urinary tract infection, and wound infection. Affecting about 20% of women following childbirth. Women are at an elevated risk of infection during the puerperium. . The infection of endometrial cause's infected perineal or cesarean wounds, urinary tract infection, and the most frequent infections linked with delivery called mastitis (Chan & Arulkumaran, 2021).

Infections during labor and the puerperium period are one of the primary causes of maternal mortality globally, accounting for around 10% of all maternal fatalities (Dao *et al.*, 2015).

These infections can present insidiously, causing fast deterioration and, in the worst-case scenario, mortality (Acosta, 2013).

The number of deaths caused by puerperal infections has fallen dramatically in high-income nations, and the vast majority of the estimated 75,000 maternal deaths caused by puerperal infections globally each year occur in low-income countries (Gică *et al.*, 2022).

All of these postpartum infections have been documented to manifest mostly following hospital discharge (Karsnitz, 2013).

As a result, infection prevalence has been reported at various levels, depending on health-care systems, access to care, monitoring methods, and definitions. Regardless of delivery technique, postpartum infection is the major cause of prolonged hospitalization and the second highest reason of readmission after childbirth. (Nam& Park,2020).

2.4.3. d. Problems associated with episiotomy

Episiotomy, a frequent obstetric surgery, is related with the requirement for suture and postpartum healing issues such as blood loss, edema, hematoma, infection, wound dehiscence, and perineal discomfort (Bharathi, 2013)

Episiotomy is a procedure that widens the vaginal opening during the second stage of labor by incision of the perineal muscles (Rasouli *et al.*, 2016). Although the prevalence of episiotomy decreased in certain nations between 1992 and 2003, it was reported to be 40% in England, 54% in North America, and 95% in Eastern Europe; in Iran, the frequency was reported to be 97% in primiparous women (Ghiasvand *et al.*, 2022).

Episiotomy is designated as a procedure that is frequently overused in the World Health Organization's. Maternal Health and Safe Motherhood Programme, since there is evidence that its habitual usage causes damage.

Indeed, regular episiotomy is related with an increased risk of grade 3 and 4 ruptures and anal sphincter muscle injury (WHO, 2017).

This damage must subsequently be treated, and women commonly endure discomfort, bleeding, infection, and dyspareunia following treatment (Jiang *et al.*, 2017).

Increased demands in the early 1990s resulted in a drop in the rate of routine episiotomy in England, however suggestions to lower episiotomy rates have generally been based on the perspectives of health care practitioners, with little regard for women's perspectives or goals. (Jiang *et al.*, 2017).

Episiotomy complications include bleeding, perineal discomfort, suture dehiscence, perineal bruises, perineal oedema, vaginal hematoma, anal sphincter injury, and dyspareunia, all of which adversely affect the parturient quality of life. Additionally, the delay in perineal wound healing results in poor anatomical outcomes, which may result in dyspareunia. (Khan *et al.*, 2020).

Inflammatory symptoms such as oedema, ecchymosis, redness, and discomfort begin within hours of birth and may persist throughout the inpatient period. Oedema, redness, and ecchymosis occurred in 26.2 percent, 6.6 percent, and 3.3 percent of women who underwent episiotomy or second degree laceration during the first 24 hours following childbirth, respectively, according to a randomized controlled experiment. (Alvarenga *et al.*, 2015).

Episiotomy-induced inflammatory symptoms such as redness, edema, ecchymosis, and pain manifest during the first 24 hours and may persist beyond the hospitalization period. These indicators may be objectively quantified using Davidson's redness, edema, ecchymosis, discharge, and apposition (REEDA) scale. This scale was utilized in recent research to

measure perineal suture technique, postpartum perineal tear, and the influence of laser irradiation on perineal discomfort (Pebolo *et al.*, 2020).

Both mothers and infants benefit from the postnatal period. Despite the fact that this is the time when the bulk of mother and infant deaths occur, it is also the time when high-quality care is most scarce, especially in low-resource countries. (WHO, 2013).

There is no consensus on how to characterize postpartum anemia. Nonetheless, according to various researchers' criteria, postpartum anemia (PPA) occurs when hemoglobin levels are "11 gm/dl after one week and 12 gm/dl after eight weeks. Mild anemia is defined as hemoglobin levels of 10–10.9 gm/dl, whereas moderate and severe anemia are defined as values of 7–9.9 gm/dl and 7 gm/dl," respectively. While there is no universal agreement on the best time to check postpartum hemoglobin levels, it is typically suggested to do so on the first postpartum day. (Api *Et Al.*, 2015).

In industrialized nations, the prevalence of anemia among postnatal moms varies from 10% to 30%, whereas in underdeveloped countries, the incidence ranges from 50% to 80%. Despite Ethiopia's goal of reducing anemia by 2020, postpartum anemia in nursing women increased from 18% in 2011 to 28.6% in 2016. In Ethiopia, anemia is a secondary cause of maternal morbidity and death, accounting for 2% of all maternal deaths. Anemia and blood loss created maternal complications. As a consequence of bleeding, postnatal mothers lose a significant amount of iron during labor and delivery. (CSA, 2017).

PPA has also been linked to a worse quality of life, palpitations, increased maternal infections, tiredness, impaired cognitive function, expressive instability, and depression during postpartum. These effects

might result in a lack of mother-child bonding, inability to provide care and breastfeeding, or a delay in infant development. (Wassef *et al.*, 2019).

Anemia is a significant worldwide health issue, particularly in underdeveloped nations. Postpartum anemia has a detrimental effect on both the mother and the newborn baby's health. (Abebaw *et al.*, 2020)

2.5. Cesarean section, the past, approaches, and rates

The first doctor to recommend caesarean sections as a technique for pregnant women was Francois Roussette (1530–1603) (Paris, 1581: *Traitté nouvelle de l'hysterotomotokie, ouenfantement*). Roussette pointed to the historical account of Jacob Nufer (1500), a Swiss swine castrator who is believed to be the first person to successfully perform a caesarean section on Elizabeth Alice Pachin, his wife, who experienced a protracted and dystocic labor during her first pregnancy. He used a blade to make an abdominal and uterine incision, removed the fetus, and then stitched up the abdominal wall. The patient lived and went on to give birth vaginally, including to twins. The newborn lived for 77 years after birth (Beogo *et al.*, 2017)

Through an incision made in the abdominal wall and uterus, a fetus is surgically removed from the mother's uterus during a cesarean section (CS). CS has existed for thousands of years. CS, which began as a post-mortem treatment to separate dead mothers and children in ancient India and Egypt, is arguably one of the earliest surgical procedures. In the folklore of ancient communities in Europe, Asia, and the Middle East, the early history of CS is still shrouded in stories with dubious historical veracity. CS was used to either save a live child from a dead or dying mother or to bury the mother and child separately after death (Dhakal-Rai *et al.*, 2021).

An abdominal and uterine incision is used during a cesarean delivery to deliver the fetus, placenta, and membranes. One of the most frequent operations performed worldwide is the caesarean section, which can be performed as an emergency, essential, or elective procedure. The most common causes of cesarean birth are prior cesarean births, Cephalic Pelvic Disproportion, Fetal Distress, Pregnancy-Induced Hypertension, Failed Induction, Antepartum Hemorrhage, Obstructed Labor, Breech Presentation, Multiple Gestation, Chorioamnionitis, and Failed Induction. Delivery via cesarean section is the most common methods among pregnant women, abdominal surgery is most frequently performed. In low-, middle-, and high-income nations, there are thought to be 20 million cesarean section deliveries every year, with that number steadily rising. (Ayalew *et al.*, 2020).

The Caesarean section is likely certainly one of the procedures with a long history, although mythology has lost track of its original genesis. The Roman term "caesomatrix," which meant to cut a fetus out of the mother's womb, is most likely where the word "caesarean" originates. The statute Lex Regia (Numapompilius) or Lex Cesarea mandated the removal of the fetus from the mother's womb in the event of maternal death for a personal funeral. The term "section" was originally used by Jacques Guillemeau in 1598 to designate the surgical intervention as a delivery option. (Patel *et al.*, 2020)

Maternal morbidity in the peri-partum interval is a significant factor to consider when evaluating the outcomes related with mode of delivery. The Term Breech Experiment was a multi-center, randomized controlled trial including 2088 women. Its purpose was to assess if planned Caesarean delivery, as opposed to planned vaginal birth, lowered the risk of unfavorable perinatal outcomes in breech presentation at term (Hannah *et al.*, 2000).

PPH is the first randomized experiment to do so. At three months postpartum, the authors reported a reduction in adverse perinatal outcomes without an increase in immediate maternal morbidity in the planned caesarean group; they also reported an increase in maternal morbidity following Caesarean delivery during active labor and a decrease in maternal morbidity with a brief active phase of the second stage of labor (pushing for less than thirty minutes) (Fuxe *et al.*, 2022).

When compared to women who deliver vaginally, a Caesarean section increases a woman's risk of pregnancy-related morbidity and mortality (35.9 deaths per 100,000 live births), according to a study by the "American College of Obstetricians and Gynecologists ACOG" (9.2 deaths per 100,000 live births) (Rayburn & Strunk, 2013).

Unnecessary CS has two major consequences. To begin, it places a strain on finite facilities and financial and human resources. Second, because surgery is dangerous, it increases the chance of hysterectomy and other serious consequences. Additionally, it imposes a tremendous physical and psychological toll on women who undergo the treatment (Nazir, 2015)

2. 5. 1. Types of cesarean section

2. 5. 1. A. Emergency cesarean section

Emergency Cesarean Section Indications Cesarean section indications are classified as maternal, fetal, or a combination of the two.

A) Unequivocal Maternal Indications

- ✓ Induction of labor failed Failure to progress
- ✓ Dystocia during labor
- ✓ Cephalopelvic disproportion

B) Maternal Relative Indication

- ✓ Repetition by choice
- ✓ Cesarean Section maternal illness, such as pre-eclampsia with an atypical cervix Situations in which the increased intrathoracic pressure caused by Valsalva movements may result in maternal problems such as a dilated aortic valve root or recent retinal detachment.
- ✓ Women who have previously undergone vaginal or perineal reconstructive surgery, such as colporrhaphy or ileal pouch-anal anastomosis following colostomy for inflammatory bowel disease.
- ✓ Uterine myomas

C) Utero-placental Absolute Indication

- ✓ Previously performed uterus surgery (full thickness myomectomy)
- ✓ Previous uterine rupture Obstruction of the uterine outlet (fibroids / cervical carcinoma)
- ✓ Large placental abruption) Placenta previa (Mohamed, 2015).

D) Indication of relative utero-placental pregnancy

- ✓ Presenting the cord during labor

E) Absolute Fetal Indications

- ✓ Distress in the uterus
- ✓ Prolapse of the cord
- ✓ Malpresentation of the fetus, e.g. transverse lie.
- ✓ Infections in the mother: primary genital herpes, HIV
- ✓ Malpresentation of the fetus: breech, brow, complex, face
- ✓ Multiple pregnancies: no vertex twins or higher order multiples (triplets or greater).
- ✓ Anomalies of the fetus, such as hydrocephalus

- ✓ Primary cesarean section is most frequently performed for fetal well-being (fetal intolerance to labor), followed by labor problems (either dystocia or failure to progress in labor). Repeat cesarean sections are the second leading cause of cesarean section increases (Kenny & Bickerstaff, 2017).

The factors contributing to the rise in the ratio of CS are several. Several of these are a result of changing population demographics, including as body mass index (BMI), computed as weight in kilograms divided by height in meters squared), mother age, and the occurrence of multiple gestations. Nonetheless, these characteristics alone cannot account for the amount of the increase or the broad difference among nations, indicating that social, cultural, organizational, and practice changes should be considered probable causes of the increase. (Zahumensky and colleagues, 2020).

Caesarean section complications Complete Cesarean delivery is a surgical method that involves the labor of a fetal, placenta, and membranes via make incisions on abdominal and uterine. Cesarean section is among the most common birthing procedures in the world. And it is categorized as elective, essential, or emergency. Cesarean delivery is indicated in the following circumstances: prior cesarean delivery, cephalic pelvic disproportion, fetal distress, pregnancy-induced hypertension, failed induction, antepartum hemorrhage, obstructed labor, breech presentation, and multiple gestation chorioamnionitis. Cesarean section birth is the most often performed abdominal surgery on pregnant women worldwide. Around 20 million cesarean section births are predicted to occur each year in countries with low, moderate, and high incomes. (Ayalew *et al.*, 2020).

According to Agneta Pleijel's novel *The Queen's Surgeon*, Herman Schützer, a Swedish obstetrician, conducted the first CS in 1758. 17 Short-

term problems following surgery and complex births were exceedingly common at the time, and many women died as a result of bleeding or postoperative infections. (Thurn, 2019).

Maternal problems have an effect on the mother's physical health as well as her mental well-being. This has an effect on both the mother's capacity to care for her kid and her impression of her delivery experience. Infant problems frequently need care and isolation from the mother, impairing early mother-infant bonding. Numerous detrimental health effects have been documented as a result of cesarean births. The table (1) below summarizes many of these findings. (Grivell & Dodd, 2011).

Table (2-1) Post-Cesarean Section Health Outcomes result of bleeding (WHO, 2017).

Maternal Complication	Percentage Risk (%)
During surgical	18
blood loss Excessively	9
Transfusion of blood	1
Hysterectomy	0.3
Morbidity related Febrile	20
Infection of the Wound	6
Endometritis	6
infection of the urinary tract	6
Morbidity associated with Serious infections	1
Thromboembolism of the veins	0.35
Maternal morbidity is quite high.	0.3
Rapture of the uterus during future pregnancy	1

Complications in newborn	
Morbidity associated with the respiratory system of newborn	3

Post - cesarean delivery complications include pain, endomyometritis, wound separation, infection, urinary tract infection, gastrointestinal problems, deep venous thrombosis, and septic thrombophlebitis. Women with no risk factors for deep venous thrombosis other than the postpartum state and the operative delivery do not require thromboembolism prophylaxis other than early ambulation. A pregnant woman's decision to attempt a trial of labor after cesarean delivery or have a planned repeat cesarean delivery involves a balancing of maternal and neonatal risks, as well as personal preference after counseling by her physician. Approximately 75 % of attempted trials of labor after cesarean delivery are successful. (Quinlan & Murphy, 2015).

Typically, the incision is done to avoid uterine myomas, and the myomas are enucleated after fetal delivery. The placement of the uterine incision varies depending on the location, size, and number of myomas, as well as the location of the placenta, in patients with uterine myomas having cesarean section. The issue is compounded when the myomas are positioned on the anterior cervical wall. In all cases, the primary goal is a safe fetal delivery. Typically, the incision is done to avoid uterine myomas, and the myomas are enucleated after fetal delivery. However, in certain cases, the fetus must be delivered after myomas enucleation, therefore practice is required to be prepared (Hiramatsu, 2020).

2.5.1. B. Elective cesarean

Cesareans without indications cause more problems for both mother and infant than vaginal delivery. The risk of maternal mortality from cesarean birth is three times higher than that from vaginal delivery, according to UK research. Many people believe that a cesarean birth is better for the baby's health, yet studies indicate that the chance of mortality is four times higher than an vaginal delivery birth. The most significant risks for cesarean infants include fetal respiratory difficulties such transient tachypnea of the newborn and respiratory distress syndrome, surgical blade injuries, and higher rates of newborns admitted to the neonatal critical care unit. Also, specialists feel that a cesarean baby's 1 min Apgar score is lower than an vaginal delivery baby's. (Rafiei *et al*, 2018).

2.5.2. Complication during and after cesarean section.

2.5.2. A. hemorrhage during and after caesarean section

Will Excessive hemorrhage associated with caesarean section , commonly defined as blood loss in excess of 1000 ml , is frequently underestimated , but is documented as occurring in more than 5-10 % of caesarean sections . Common causes are uterine atony, abnormal placentation, uterine trauma and sepsis. It is a Cesarean section is a leading source of maternal morbidity and death worldwide. However, many reports do not disaggregate it from postpartum hemorrhage in general. (Fawcus & Moodley, 2013).

Obstetric hemorrhage is a fatal event in a woman's life that has its place at the top of the causes of maternal death and morbidity, especially in developing countries. In Africa and Asia, it is responsible for more than 30 % of all maternal deaths. In contrast, in developed countries such as the UK

and the USA obstetric hemorrhage causes just 3.4 % and 11.4 % of maternal deaths (Sigaldehy *et al.*, 2020).

Pregnancy-related fatalities account for about 19.7% of all maternal deaths globally. Maternal fatalities from PPH account for 480 000 (32%) of deaths in northern Africa, while only 1200 (8%) in developed areas. Caesarean section safety has lately been questioned in South Africa. blood during and after caesarean section is becoming more common. A total of 78 fatalities were reported in 2002-2004, 140 in 2005-2007, 180 in 2008-2010, and 221 in 2011-2013. Blood during and after cesarean section is currently the leading cause of maternal mortality from obstetric bleeding in South Africa. The surge in maternal fatalities was ascribed to an increase in the national caesarean section rate, which rose from 12.7 percent in 2001/02 to 20.8 percent in 2012/13. (Maswime & Buchmann, 2017).

Globally, statistics on maternal mortality from Blood during and after cesarean section are lacking, particularly clinical and surgical details. Even with the current rise in mortality, relevant prospective studies remain difficult to do. Studying Blood during and after cesarean section 'near misses' is an option. A maternal near-miss is a woman who escapes severe pregnancy, delivery, or postpartum difficulties. There are more examples accessible for research than maternal mortality, and relevant information may be gathered on how clinical, surgical, and clinical treatment difficulties are overcome after the start of an acute problem. (Kenny & Bickerstaff, 2017).

Predictors of postpartum bleeding in different countries have been studied before. There are several circumstances that might cause pre-partum hemorrhage (PPH), including numerous pregnancies (particularly if the

woman is 35 or older), placenta previa (placenta Previa), long labor, surgical vaginal delivery, and Caesarean cut (C-section). (Kebede *et al*, 2019).

WHO modified the statement in 2015 by adding that the purpose is to provide CS to pregnant women in need, not a precise pace. Cesarean deliveries have increased dramatically in the last 50 years across the globe. Between 2000 and 2015, the number of CS births almost quadrupled, from 16 million to 30 million, equating to an increase in the global CS rate of 12 percent to 21 percent in 2015. There are considerable variances across nations and regions, with CS rates ranging from 0.6 percent to 60%, owing to inequalities in the economy, resources, and health-care systems. (Boerma *et al.*, 2018).

2.5.2. B. Urinary bladder injury during cesarean section

Being the closest anterior organ to the uterus, urinary bladder damage during CS is common. Bladder damage is 0.2 percent in first CS and 0.6 percent in recurrent CS. As a result, primary care doctors who deal with obstetrics should be aware of the fact that cesarean deliveries are now within the scope of a Family Physician. Both the American Academy of Family Physicians and the American College of Obstetricians and Gynecologists have said that family medicine includes surgical delivery. The AAFP's resident training included CS and advanced obstetric skills (American Academy of Family Physicians, 2018).

Because cesarean sections are becoming more common, the prevalence of morbid adherent placenta in future pregnancies is rising. The presence of a morbid adherent placenta (accreta, increta, and percreta) is linked to a higher rate of bladder involvement and, as a result, a higher rate of bladder damage during pregnancy (Total urinary tract injury 21.7 percent

, bladder 11.7 percent , ureter 4.7 percent , and bladder with ureter 5.3 percent) (Alanwar *et al.*, 2019).

The incidence of bladder injury has been reported to be 0.27 % for primary cesarean delivery, and 0.43 % -0.81 % for repeat cesarean delivery. Positively associated with bladder injury are adhesions from prior surgery, emergency delivery, labor during cesarean, and attempted vaginal birth after cesarean (Morris *et al.*, 2016).

Other conditions which an obstetrician should remember while doing cesarean section so as to avoid bladder injury are

1. Long labor with a swollen bladder.
2. Pregnancy with a scarred uterus, such as after a myomectomy, mitoplast, repaired uterine perforation (septic abortion), and so on.
3. Possible intra-abdominal adhesions, such as after a non-uterine pregnancy, chronic pelvic inflammation, malignancy, irradiation, etc.
4. A cervical or lower segment fibroid, urogenital system anomaly, obstructed labor (though this is less common now because of the widespread use of the partograph).

In this case, a woman who was in labor for a long time had a cesarean (due to well taken - up of cervix uterine incision may fall over anterior vaginal wall leading to difficult dissection of bladder from the field) (Gungorduk & *et al.*, 2010).

About 1-4 percent of bladder injuries are caused by a cesarean hysterectomy. The more previous CS you have, the more likely you are to have a bladder injury. Women who have had CS more than three times are five times more likely to have a bladder injury than women who have had

CS once. Emergency CS is more likely to cause bladder damage than planned CS (31 percent vs. 11 percent). CS also increases the risk of bladder damage in women who are in labor, compared to women who aren't in labor at all (83 percent vs 61 percent) (Narava *et al.*, 2020).

The more cesarean deliveries you have had, the more likely you are to have problems (especially 5 abnormal placentation). It would be best for most women who plan to have more than one child if they didn't use CS for the first time they gave birth (Colmorn *et al.*, 2017).

Whether or not they support or disprove certain techniques that are used today. A double-layer closure of the hysterectomy, the use of adhesive barriers, and skin incisions instead of a vertical midline sub umbilical incision all have good evidence behind them. There is also no evidence that the creation of a bladder flap, which is done every time a woman has a cesarean section, is a good way to keep her bladder safe. (M tarney, 2013).

Given the likely increasing rate in cesarean deliveries, obstetricians need to be cognizant of potential complications. Fortunately cesarean delivery has been associated with low rates of maternal morbidity and mortality over the past century. However, the most common complication of pelvic surgery is urologic injury, with bladder injury quoted as the most frequently injured organ during pelvic surgery. The incidence of bladder injury during cesarean section ranges from 0.08 to 0.94 % (Shepard et al., 2019).

2.5.2. C. Bowel injury during cesarean section

Bowel injury is rare during cesarean section, the scarring and sclerosis are risks for injury to adjacent structures. Although they occur rarely, birth injuries related to the mistaken cutting of the bowel duct are among the risks that mothers face with a C - section. While making the incision for the C -

section, a surgeon might accidentally pierce the bowel duct. While initially difficult to detect, the mother typically undergoes an initially gradual decline in health followed by a more rapid onset of potentially life threatening complications, including a high fever caused by internal leaking of fecal matter (Manidip& Soma, 2020).

The bladder is the most often injured organ during obstetric or gynecologic surgery. Previous cesarean birth, adhesions, urgent cesarean delivery, and cesarean section done during the second stage of labor are risk factors for bladder damage. Fortunately, most bladder injuries are detected and repaired during surgery, which reduces patient mortality. Cesarean delivery is a standard in obstetrics. The rate of intestinal damage varies from 0.62 1.6 per 1000 laparoscopic procedures to 0.3 percent hysterectomy, 0.08 percent cesarean section, and 0.04 percent normal vaginal birth. Also, intestinal injuries occur in 0.54-0.7 percent of people. A third of bowel injuries are discovered during surgery. Mild intestine injuries may be healed by intestinal closure, while severe injuries need resection. (Mesdaghinia & *et al.*, 2013).

2.5.2. D. Fetal laceration during cesarean section

Fetal laceration is a recognized complication of caesarean delivery. The aim of this study was to investigate the incidence, type, location, risk factors and long - term consequences of accidental fetal incised wounds during caesarean delivery. Not only does the excessive use of surgery not improve perinatal morbidity and mortality, it also increases the risk of maternal and fetal complications. Among the complications of caesarean section, tissue lacerations caused by the scalpel during the incision of the uterine wall are reported. This kind of complication is actually rarely

reported, and it seems that its incidence is about 2-6 %. (Esposito *et al.*, 2015).

2.5.2. E. Uterine rupture during cesarean section

Uterine rupture is associated with maternal and perinatal mortality and morbidity worldwide, particularly in developing countries. The most common cause of uterine rupture is tear of a previous caesarean section scar after a trial of labour in a patient with a previous caesarean section. Rupture of an unscarred uterus is rare. It may occur in obstructed, multiparous labour and in response to inappropriate use of oxytocic agents. Its incidence decreases with improvement in obstetric practice (Berhe & Wall, 2014).

Uterine rupture is the most severe early complication and is defined as the complete laceration of the uterine wall including its serous layer, creating a communication between the endometrial and peritoneal cavities with gas and blood leakage and consequent hemoperitoneum (Rodgers *et al.*, 2012).

Hysterectomy is now the second most frequently performed surgical procedure in women (after cesarean section) throughout the world. The rate of hysterectomy differs between countries, but also within countries, depending on differences in morbidity, health economical aspects, traditions and attitudes (Billfeldt *et al.*, 2018).

Hysterectomy is regarded as a safe procedure with a low perioperative morbidity rate and relatively few short - term complications. The mortality rate is estimated to 0.4 % and the rate of severe complications has been reported to 3 %. (Michael *et al.*, 2022).

2.5.2.F. Peripartum hysterectomy associated with cesarean section

Emergency peripartum hysterectomy was found to be more common following caesarean section than vaginal deliveries. In addition, there is a significant association between emergency peripartum hysterectomy and previous caesarean section and placenta Previa. The risk of emergency peripartum hysterectomy increases with the number of previous caesarean sections. There is an increased incidence of previous caesarean section in patients with placenta Previa and in patients with adherent placenta peripartum hysterectomy Admission to intensive care unit. (Bateman *et al.*, 2012).

Pregnancy and delivery may be associated with complications that require intensive care unit (ICU) care. There is increasing evidence that admission of high - risk obstetric patients at the ICU leads to a decrease in maternal mortality. It has been claimed that obstetric patients comprise only 0.07 % to 0.074 % of patients that require ICU admission, yet they have the potential for catastrophic complications (Farzi *et al.*, 2017).

They are admitted to the ICU for close observation to detect the problems earlier , perform invasive monitoring , increase nursing care or ventilatory support or any intervention that are not available at the wards . Care of obstetric patients has always been a challenge for critical care physicians (Ashrafn *et al.*, 2014).

2.5. 2.G. Severe anemia after cesarean section

The postnatal period is essential for both moms and newborns. Even though most maternal and newborn fatalities occur during this time, proper

treatment is often ignored, particularly in nations with limited resources. (WHO, 2013).

There is no universal agreement on what constitutes postpartum anemia. Nonetheless, postpartum anemia (PPA) occurs when hemoglobin levels are less than 11 gm/dl at 1 week and more over 12 gm/dl at 8 weeks after delivery, as defined by various experts. (Di Renzo *et al.*, 2019).

Accordingly, hemoglobin level 10–10.9 gm/dl is categorized as mild anemia, 7–9.9 gm/dl and <7 gm/dl are categorized as moderate and severe anemia, respectively. Furthermore, even if there is no clear agreement as to the right time to determine the postpartum hemoglobin level, it is usually recommended to check on the first postpartum day (Api *et al.*, 2015).

The World Health Organization (WHO) adopted the hemoglobin (Hb) level of <12 g/dL as a criterion to define postpartum anemia in non-pregnant women. However, it is difficult to find a uniformly accepted definition as for more restrictive criteria by selecting an Hb cut-off point at Hb>11g/dL,⁴ and even one of <10 g/dL. (WHO, 2017).

Postpartum anemia is a major public health problem with a high incidence worldwide. It is estimated that 50–80% of women present anemia within 48 h of giving birth. Repercussions are more serious in low-income countries for its association with other morbid processes, where its' also one of the most common causes of maternal death. (Rubio-Álvarez *et al.*, 2018).

Over half a million women die due to complications of pregnancy and childbirth each year .In sub-Saharan Africa where the majority of maternal deaths occur, the risk of dying in childbirth is 175 times that of developed countries. Postpartum hemorrhage, characterized by severe bleeding (>500 mL) after birth of the baby, is the leading cause of maternal death in African and other developing countries Childbirth and the immediate postpartum

period are critical time points in a woman's life, as maternal deaths primarily occur during labour, delivery, and the immediate postpartum period, with the risk of death being particularly high in the initial days following birth. (Kavle *et al.*, 2008).

In industrialized nations, the prevalence of anemia among postnatal moms varies from 10% to 30%, whereas in underdeveloped countries, the incidence ranges from 50% to 80%. Despite the 2020 anemia reduction strategy, postpartum anemia among nursing mothers in Ethiopia grew from 18% in 2011 to 28.6% in 2016. Maternal problems were caused by a combination of blood loss and anemia. During labor and delivery, postnatal moms lose a large quantity of iron due to bleeding. (WHO, 2017).

PPA is also linked to low quality of life, palpitations, a rise in maternal infection, exhaustion, decreased cognitive function, emotional instability, and postpartum depression. As a consequence of these effects, poor mother-child attachment, inability to give care and nursing, and sluggish newborn growth may occur. (Wassef *et al.*, 2019).

2.5. 2.H. Wound infection after cesarean section

Surgical Site Infections with complication Women are more susceptible to infection during the postpartum period, infections in perineal or cesarean wounds, urinary tract infections, and mastitis are the most frequent infections linked with delivery. (Ngunyi *et al.*, 2020).

In comparison to 0.3 percent of wounds following vaginal birth, wounds after CS have been documented to be infected in 0.2 percent to 16 percent of instances. All of these postpartum infections have been observed to be evident mostly after discharge from hospital (Karsnitz, 2013)

Among surgical patients in obstetrics " Surgical Site Infections SSIS " are the most prevalent nosocomial infections, accounting for 38 % of hospital acquired infections (Gelaw *et al.*, 2017).

Surgical site infection is defined as infections that occur at or near surgical incision within 30 days of operation or after 1 year if an implant is placed. Post cesarean wound infection classified as superficial, deep and organ surgical site infection based on the involved tissues or organs (Solomkin *et al.*, 2017)

There is no universally accepted definition, but indications of inflammation (swelling, pain, and erythema) together with pus discharge from the site are generally enough to make the diagnosis. Fever isn't always present, and lab tests, at least in the early stages of sickness, are often unspecific. Hemolytic, Streptococci, Staphylococcus aureus, Staphylococcus epidermidis, and Urea plasma urealyticum are the most common pathogens discovered in cultures from infected wounds. WI may impact the underlying fascia in rare cases, resulting in necrotizing fasciitis, a life-threatening infection with death rates ranging from 30% to 60%. Hemolytic streptococci, Staphylococcus aureus, anaerobic streptococci, or Clostridium perfringens are the most common causes of necrotizing fasciitis. (Kawakita & Landy, 2017).

Obese women have an increased chance of cesarean birth. Diabetes mellitus, as well as the length of the operation, the amount of blood lost during surgery, and the number of vaginal checks performed prior to an emergency CS, are all risk factors. (Gadeer *et al.*, 2020).

Infection of the postoperative wound is one of the most prevalent problems following cesarean section in both developed and developing nations. To get a controlled, accurate, and consistent magnitude, a surgical

site infection monitoring system must be implemented prior to, during, and after cesarean delivery. Any infection of the abdominal wound complicating cesarean section should be avoided by employing strong prevention measures (Ddm et al., 2014).

Surgical site infections (SSI) are the most prevalent postoperative complications, costing hospitals providing acute care 3.2 billion in contributable costs each year. Surgical site infections (SSI) are the most prevalent reason for unplanned admissions (20%) following discharge from the hospital (Zimlichman *et al.*, 2013; Merkow *et al.*, 2015).

Irrigating surgical wounds is critical for preventing surgical site infection by using an antiseptic solution of chlorhexidine gluconate. Surgical wound irrigation is a recommended strategy for developing more evidence-based guidelines and enhancing surveillance systems that contribute to the development of a parameter for health personnel to use in preventing infections associated with health care, particularly postoperative wound infection (Zamudio *et al.*, 2017).

2.5. 2.I. Endometritis after Cesarean section

Additionally, endometritis is referred to as endomyometritis, endomyoparaametrinitis, or simply metritis. These phrases refer to the extent to which the infection has infiltrated the maternal tissue. In practical practice, determining the precise extent of the uterine infection is rarely achievable or necessary, as therapy is not considerably different in these circumstances. Because medical registries do not distinguish between different forms of uterine infection. Endometritis affects 0.17 percent to 30% of postpartum women, depending on the delivery method and monitoring methods employed. (Boushra & Rahman, 2020).

Endometritis is often diagnosed by a present of fever, pain in uterus, anomalous discharge (visually or odorously abnormal). Also, a large increase in count of white blood cell count and/or C- reactively protein. It is sometimes difficult to pinpoint the microbiological origin of individual cases of endometritis, as cultures obtained postpartum are frequently contaminated by this non-sterile environment. Endometritis was induced by group a streptococci in classical childbed fever, resulting in a dramatic course of illness, frequently deadly. Nowadays, this virus is uncommon in obstetric infections, despite occasional epidemic bacteria. The majority of cases of endometritis are polymicrobial in nature, with both aerobic and anaerobic gram - positive and gram - negative cocci and rods present (Axelsson, 2019).

UTI following CS in Sweden, urinary tract infection is one of the most common bacterial diseases requiring antibiotic therapy in outpatient care. Approximately half of all women will get at least one urinary tract infection. Over their lifetime. Each year, around one in every eight women suffers with an incident of UTI (Butler *et al.*, 2015).

Urethral catheterization is a standard technique performed before to caesarean delivery. Catheterization is used to avoid bladder injury, intraoperative complications, and postoperative urine retention, with the notion that an empty bladder is less likely to sustain harm than one that is inflated. A swollen bladder is also predicted to obstruct exposure and complicate operation. Catheterization before to caesarean section was supposed to minimize bruising and oedema of the bladder, as well as lower abdominal discomfort associated with urine retention. To minimize post-operative urine retention, the catheter is often withdrawn immediately after surgery or 12-24 hours later (Onyegbule *et al.*, 2014).

Acute pyelonephritis symptoms manifest fast over a few hours or a day and may include fever, chills, nausea, and vomiting. Cystitis symptoms may also be present. Physical examination of the costovertebral angles may indicate significant pain. The majority of patient's exhibit identifiable bacteria in Gram stained uncentrifuged urine. (Barford & Coates, 2009).

2.5. 2.J. Thromboembolism of the veins after Cesarean section

Pregnancy and postpartum are connected with an increased risk of thromboembolic illness, most notably deep vein thrombosis and pulmonary embolism. Although the postulated mechanism is not fully proven, it is assumed to result from increased venous stasis induced by the gravid uterus's compression and hemostatic imbalance caused by higher plasma levels of pregnancy-related hormones. Venous thromboembolic illness is a significant source of maternal morbidity, and pulmonary embolism is the largest cause of maternal death in the industrialized world. As a result, it is critical to identify individuals with venous thromboembolic and venous thromboembolic promptly. (O'Connor *et al.*, 2011; Byun *et al.*, 2019).

Venous thromboembolism is a frequent and potentially life-threatening surgical event. Prior to the discovery of thromboprophylaxis, the reported incidence of postoperative thrombosis varied from 50% to 70% in various types of surgery. A fatal pulmonary embolism occurred in around 1% of all patients. While venous .Thromboembolic events are a leading cause of maternal death in both cesarean and vaginal delivery moms (Friedman & Ananth, 2016)

Postpartum mobility and the style of delivery are critical components of the pathophysiology of thromboembolism. Following vaginal delivery, the risk of thromboembolism is 1 in 1,000, but this risk increases to 3 in

1,000 after elective cesarean surgery, and the fatality rate linked with venous thromboembolism after cesarean section is raised tenfold when compared to women who deliver vaginally. The causes for such a disparity in outcome between the two delivery procedures might be attributed to a variety of circumstances, including a longer period of immobilization following cesarean section compared to vaginal birth (Sénat *et al.*, 2016).

Pregnant women are at a higher risk of venous thromboembolism, which includes deep vein thrombosis and pulmonary embolism, for hormonal and mechanical causes (PE). Because the risk of venous thromboembolism is greatest in the two weeks following birth, avoiding (venous thromboembolism) in the primary postpartum duration is likely the best chance to lessen the burden of morbidity and death associated with pregnancy-related venous thromboembolism. Obstetric venous thromboembolism is associated with having a long-standing post-thrombotic syndrome and a depressed quality of life in a significant number of women, whereas PE is potentially lethal and also associated with a long-term risk of impairment due to persistent pulmonary hypertension. (Wik *et al.*, 2012).

Hypercoagulability remains for 2–3 weeks following pregnancy hemostatic alterations. Thrombocytosis is a common occurrence in the postpartum period, regardless of delivery technique. Postpartum increases in tissue factor levels are linked to increased levels of activated factor VII (FVIIa) and thrombin production markers. The activation of TF-dependent coagulation is not different between vaginal delivery and cesarean surgery. Introductory TF generates the TF-FVIIa complex, which is the hemostatic initiator. To activate activated factor V (FVa) and activated factor VIII (FVIIIa), active factor V (FVa) must be activated. This leads to puerperium thrombus formation (Evangelista *et al.*, 2018).

Those who had cesarean surgery had higher plasma homocysteine levels than women who had vaginal births. Maternal erythrocyte glutathione levels rose significantly after full-term vaginal birth but not after elective cesarean birth. Oxidative stress causes NO depletion and endothelial dysfunction by forming oxygen-free radicals. A vaginal delivery improves endothelium function, while a cesarean birth degrades it. (Kobayashi *et al.*, 2014).

Today, about a third of all births in Europe and North America are c-sections (CS). Elective CS are connected with an increased risk of VTE in certain studies, but not all. Understanding the link between CS and VTE, as well as the absolute risk of VTE after CS, may help obstetricians and their patients better prepare for postpartum thromboprophylaxis. We aimed to modify estimates of the relative risk of postpartum VTE after CS vs VD in unadjusted and multi-adjusted studies. The second goal was to estimate postpartum VTE after CS using meta-analysis. (Martin *et al.*, 2017).

2.5.3. Anesthesia with complications during and after cesarean section:

Complication of anesthesia related with cesarean section Gei For cesarean birth, general anesthesia and regional anesthetic are the preferred anesthetic treatments. Both the fetus and the mother are affected by these anesthetic procedures. The anesthetic approach used for cesarean birth is determined by a number of circumstances, including the patient's physiological state, the practitioner's level of expertise, the availability of medications, and the availability of equipment. Regardless of the procedure employed, it is chosen because to its low risk profile and advantages to both mother and baby (Iddrisu & Khan, 2021).

Prevents the use of regional anesthetic. A spinal anesthetic is easier to put technically than an epidural block in epidural anesthesia. Spinal anesthesia has a rapid onset of action and delivers a consistent surgical anesthetic from the mid-thoracic region to the sacrum with a failure rate of less than 1%. Additionally, spinal anesthetic was proven to be a more effective and cost-efficient method of anesthesia for simple elective cesarean sections than epidural anesthesia. (Sarkar, *et al.*, 2021).

Nausea and vomiting are rather typical side effects of spinal anesthetic used during and following cesarean delivery. Without prophylactic antiemetic, the incidence of nausea and vomiting is highly varied; up to 80%. (Voigt *et al.*, 2013).

Cesarean section is a common surgery that has a much higher risk of maternal death than vaginal delivery, with the leading causes of death being preeclampsia-related complications, pulmonary thromboembolism, amniotic fluid embolism, obstetric hemorrhage, and heart disease. (Clark *et al.*, 2008).

To achieve anesthesia during cesarean birth, general anesthesia (GA) or regional anesthesia (RA) procedures such as spinal anesthesia (SA), epidural anesthesia (EA), or spinal-epidural anesthesia (CSE) might be employed (Sumikura *et al.*, 2016)

The purpose of cesarean delivery anesthesia is to ensure that the fetus is delivered safely and with little or no difficulties for the mother. As a result, it is crucial to compare regional vs general anesthesia in terms of fetal and maternal outcomes (Kim *et al.*, 2019).

General Anesthesia is still used in some situations, most notably when regional anesthesia is contraindicated or does not perform. The following are some of the advantages of general anesthesia: maintains a patent airway,

regulates breathing, and alleviates cardiorespiratory depression (Devroe *et al.*, 2015).

General Anesthesia commonly leads in problems such as intubation failure, respiratory failure, and aspiration of stomach contents, consciousness, site injection pain, and fetus depression. (Ginosar *et al.*, 2013).

The majority of anesthesiologists have minimal clinical expertise in obstetrics with general anesthesia. General Anesthesia is frequently utilized during emergency cesarean sections due to the time restrictions given by the fetal condition, which precludes the use of regional anesthetics. (Devroe *et al.*, 2015).

General anesthesia, in compared to regional anesthetic, has a quick and predictable onset, total control of the airway and breathing, and maybe less hypotension. The principal adverse effect of regional anesthesia and related sympathetic blockade on the fetus is hypo perfusion of the uterine and placenta, resulting in a sudden drop in intervillous blood flow and the potential of fetal acidemia (Sung *et al.*, 2021

A small spinal needle was used to inject spinal anesthesia into the L2-3 or L3-4 intervertebral disc space (size 22G "3.5 inch"). Injection of bupivacaine (Marcaine) (1.5-3.5ml) into the subarachnoid space (Bayoumi, 2017).

Spinal anesthesia Regional anesthetics, particularly spinal anesthetics, have been considered as the greatest alternative for cesarean delivery because to their avoidance of the airway, reduced risk of aspiration of stomach contents, and convenience of administration. (Kim *et al.*, 2019).

Currently, spinal anesthesia is the most often utilized method of doing cesarean sections. Hypotension is the most common adverse effect of spinal anesthesia, occurring at a rate of 30% to 60%. Following spinal anesthesia, hypotension is more frequent in pregnant women, which may be related to the cephalad dispersion of topical analgesics in subarachnoid regions. Space, and partially as a result of the uterus's strain on the aortocaval (Manouchehrian *et al.*, 2021).

Sympathectomy caused by spinal anesthesia, along with the amplification of gravity-induced peripheral blood accumulation, leads in significant hypotension in the sitting position. Hypotension has a number of adverse effects on both mother and fetus, including nausea, vomiting, and dizziness in the mother and acidemia in the fetus. Spinal anesthesia in the lateral position, on the other hand, may possibly result in less hypotension. Numerous studies in this field have produced conflicting findings regarding the prevalence of hypotension and the time required for anesthesia to begin in the sitting and lateral positions for cesarean section (Yokose *et al.*, 2015).

For the majority of caesarean sections performed worldwide, obstetric anesthesia guidelines prefer spinal and epidural anesthesia to general anesthesia. Regional blocks are indicated to help pregnant women undergoing General Anesthesia prevent failed endotracheal intubation and aspiration of stomach contents. While there is evidence that General Anesthesia is associated with an increased need for infant resuscitation, there is a dearth of studies on specific delivery causes and neonatal outcomes following resuscitation. (Agegnehu *et al.*, 2020).

2.6. Complications of newborn that may occur during and after the Cesarean section

A newborn's complication Cesarean section rates have been progressively increasing globally over the previous two decades. As a result, both short- and long-term mother and baby difficulties are becoming more prevalent. (Khasawneh et al., 2020).

In compared to a Vaginal Delivery, doing a Cesarean without reasons creates a slew of complications for both mother and baby. Additionally, research performed in the United Kingdom indicates that the risk of maternal death associated with cesarean birth is three times that associated with Vaginal Delivery. While many people assume that cesarean birth resulted in a greater likelihood of neonatal health, research have revealed that neonates born by cesarean have a fourfold risk of death compared to children born via Vaginal Delivery. Cesarean infants face many substantial hazards, including fetal respiratory distress syndromes such as Transient Tachypnea and Respiratory Distress Syndrome, surgical blade wounds, and increased rates of neonatal intensive care unit hospitalizations. Additionally, experts believe that infants delivered through cesarean had a lower Apgar score at one minute than newborns delivered via Vaginal Delivery (Rafiei et al., 2018).

The short-term effects of elective and emergency cardiopulmonary bypass on the newborn infant are well known. In compared to Vaginal Delivery, cesarean section results in a greater rate of neonatal morbidity and mortality. It is not uncommon for the general impression to think that cesarean section avoids neonatal hazards, given to the fact that cesarean section can be life-saving in some cases. This is true, but only for difficulties that arise seldom (Elias et al., 2022).

2.6.A. Injuries during (vaginal delivery and cesarean section).

Birth injuries are defined as impairments in a newborn's bodily function induced by avoidable or unavoidable unfavorable birth circumstances. Birth trauma is common in prenatal care, especially after long and severe labor or fetal malpresentations. Birth trauma has been less common over time. As a result of improved obstetric care and prenatal diagnosis. Birth trauma happens at a rate of 0.2 to 41.2 per 1000 births, depending on the delivery method, fetal presentation, and kind of injury (Warke *et al.*, 2012).

Neonatal trauma is likely to remain a problem, since even in the best of circumstances, even with the finest treatment and diagnosis, and even if there are no risk factors. Vaginal delivery with cephalic presentation and cesarean section are the two most common methods of birth trauma. There are many different types of injuries that can occur in the soft tissues (bruises, petechiae and subcutaneous necrosis, as well as ulceration and perforation), as well as in the brain and spinal cord (Erb's palsy, Klumpke's paralysis, facial nerve palsy, and musculoskeletal injury (clavicular fracture and torsion). (McKee, 2013).

Cephalohematoma and clavicular fracture were the most often occurring birth injuries, according to the majority of research. Additionally, there are a variety of risk factors for birth injuries, including instrumental delivery, small gestational age at delivery, preterm rupture of membranes (PROM), academic level of birth attendees, inductive reasoning of labor, neonatal weight, height, and head circumference measurements, prolonged labor, breech delivery, macrosomia, shoulder dystocia, maternal pelvic abnormalities, parity, and maternal age. Numerous studies have shown that

cesarean section delivery significantly lowers the risk of birth trauma (Abedzadeh *et al.*, 2015).

Identification of birth injuries and associated risk factors is necessary for the development of treatment protocols and prognosis determination, as well as for their diagnosis and timely utilization of appropriate obstetric care and (CS), which can help prevent and reduce the prevalence of these injuries. (Linder *et al.*, 2013).

Clavicle fractures are a common complication of childbirth, occurring in between 0.2% and 3.5% of all births. According to a recent study conducted at our facility by Ahn *et al.*, the overall incidence of clavicle fracture among total births was 0.41 percent. The clavicle fracture has no known cause. Although the outcome is expected to be benign and will not necessitate any special therapy. (Ahn *et al.*, 2015).

Clavicular fractures are the most common type of birth injury, occurring in around 0.2 to 2.9 percent of all births. 1–10 Clavicular fractures because parents concern and usually result in dissatisfaction with the quality of delivery, although they are an unavoidable consequence of birth. While the exact origin of clavicular fracture during delivery is uncertain, it is usually assumed to occur when the fetal anterior shoulder collides with the maternal symphysis pubis. (Ahn *et al.*, 2015).

Diagnosis is made using clinical signs such as a reduced Moro reflex, discomfort, edema, and crepitation of the affected shoulder, as well as radiography; the disease is frequently benign. (Lurie *et al.*, 2011).

This may be a stressful experience for parents because to concerns about the quality of delivery. Clavicle fractures are considered to occur more commonly during vaginal delivery, with a few happening during cesarean surgery. The majority of prior research on clavicle fracture has concentrated

on the association between predisposing factors and clavicle fracture during vaginal delivery, while studies on clavicle fracture during cesarean delivery have been limited to small case series included as a subgroup of total deliveries. (Choi *et al.*, 2016).

Numerous factors contribute to the risk of a newborn clavicular fracture during delivery, including birthweight, gestational age, Apgar score, prolonged labor, shoulder dystocia, and assisted vaginal delivery, as well as mother's age, height, and obesity (Zdener *et al.*, 2013).

2.6.B. Femur fracture during (vaginal delivery & cesarean section)

Femur fractures are the most often occurring form of birth injury. Birth injuries are uncommon during vaginal delivery, with the clavicle being the most frequently fractured bone during vaginal delivery (femur and humerus), While vaginal breech birth has been known to result in femur fracture, abdominal breech birth is not anticipated to do so, and just a few cases have been recorded. (Collins & Popek, 2018).

Even though vaginal breech delivery is uncommon, it can result in a catastrophic outcome such as a femur fracture. Cesarean sections with breech presentation are possible, but less common, as documented in the literature. Long bone fractures occurred in 0.1 percent of cases post caesarean section and 0.5 percent during vaginal delivery. Cesarean section planning reduces but does not eliminate the risk of long bone fracture (Capobianco *et al.*, 2013).

Fractures related with birth are a result of the trauma experienced during delivery. The most often damaged sites are the clavicle and humerus, followed by the femur on a rare occurrence. These fractures occur at a rate ranging from 0.1 to 10.5 per 1000 live newborns, which is likely

underestimated. The post-cesarean femoral fracture (PFF), which occurs during the difficult extraction of a large infant following a cesarean operation (Cesarean section). Malpresentation, low birth weight, macrosomia, preterm delivery, osteogenesis imperfecta, disuse osteoporosis secondary to immobility, Cesarean section, difficult extraction (breech presentation), impacted foot in the pelvis, and recent uterine rupture are all risk factors (Pavone *et al.*,2020).

Typically, the diagnosis is obtained shortly after delivery, but may be delayed in milder cases. The most frequently seen clinical symptom is a swollen, painful, hot, and inflexible thigh. Physicians frequently report a "crack" during delivery. While radiography validates the diagnosis, MRI and ultrasound are usually used to rule out other possible causes of PFF. (Capobianco *et al.*, 2013).

Numerous effective PFF therapies have been developed to immobilize the femoral shaft. The Spica cast, Pavlik harness, gallows traction, splinting with two tongue depressors, and Bryant's traction are the most frequently used treatments. All of these techniques result in an optimal end. Since 1873, Bryant's traction method has been successfully used to treat PFF and developing hip dysplasia in children under the age of three. (Pavone *et al.*, 2020).

2.6. C. Complications in the newborn after (vaginal delivery & Caesarean section)

The most common adverse respiratory outcome in newborns following CS is pneumonia. It is usually shown in babies as transient tachypnea, but can potentially present as respiratory distress syndrome needing mechanical ventilation. Additionally, the following adverse

neonatal outcomes are related with an increased risk following Cesarean section:

- Admission to a neonatal intensive care unit
- The need for cardiopulmonary resuscitation (CPR)
- Mechanical ventilation within the first 24 hours after birth
- Failure of the fetal to neonatal circulatory systems to adjust, resulting in chronic pulmonary hypertension
- Neonatal sepsis
- Hypoglycemia (low blood sugar) (low blood sugar)
- Prolonged hospitalization

The gestational weeks are associated with the lowest rates of morbidity and mortality (Cho & Norman, 2013).

Nonetheless, the adjusted risk of mortality was twice as high for infants delivered with purposeful CS as it was for those born with VD. If cesarean section is necessary for any of the following reasons: breech position, numerous births, placenta previa, psychosocial indication, prior cesarean section, limited maternal pelvis, or large baby, the best choice is near-term delivery. (Khasawneh *et al.*, 2020).

The cesarean section is the most widely used diagnostic obstetric surgical procedure Cesarean section. Traditionally, Cesarean section was used only for obstetric purposes when vaginal delivery posed a danger to both mother and baby. According to the World Health Organization (WHO), no population-based rate of Cesarean section delivery should reach 15%. According to the WHO, the ideal dosage of Cesarean section is unclear and

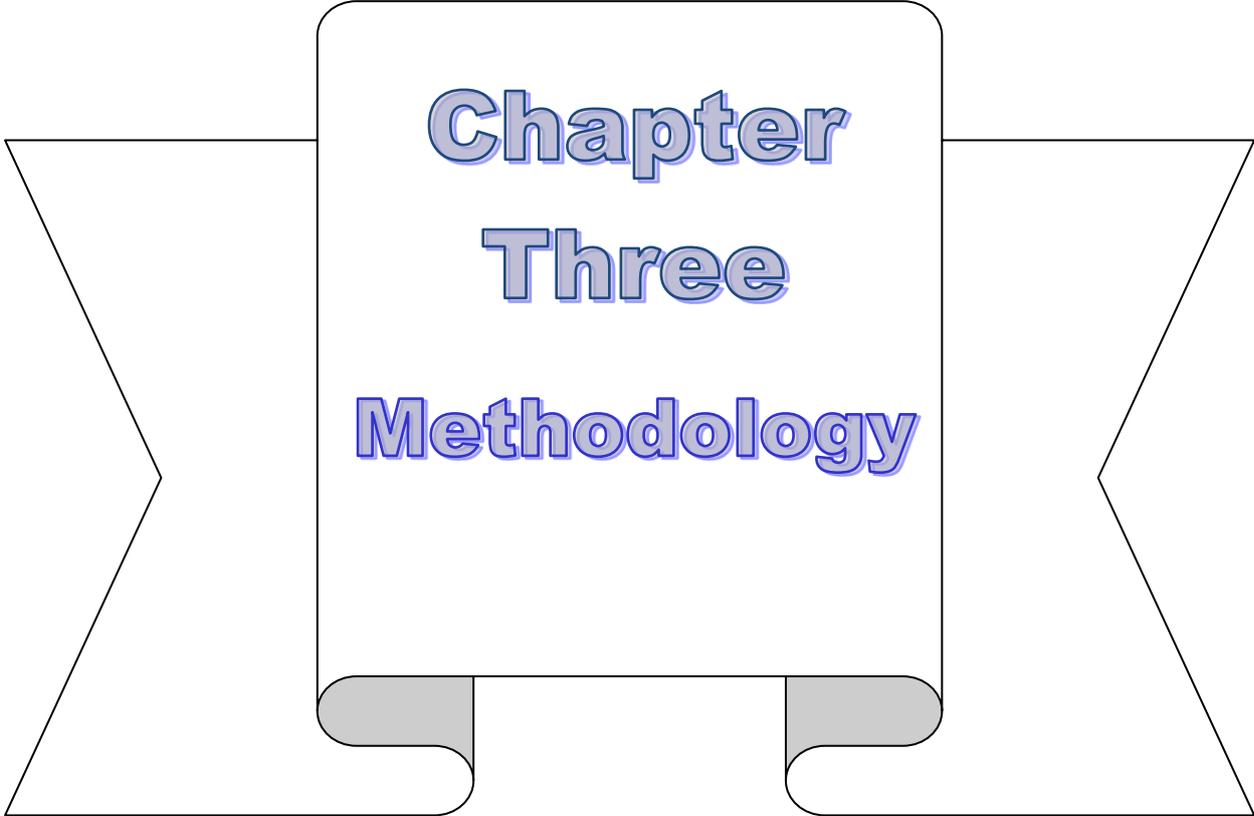
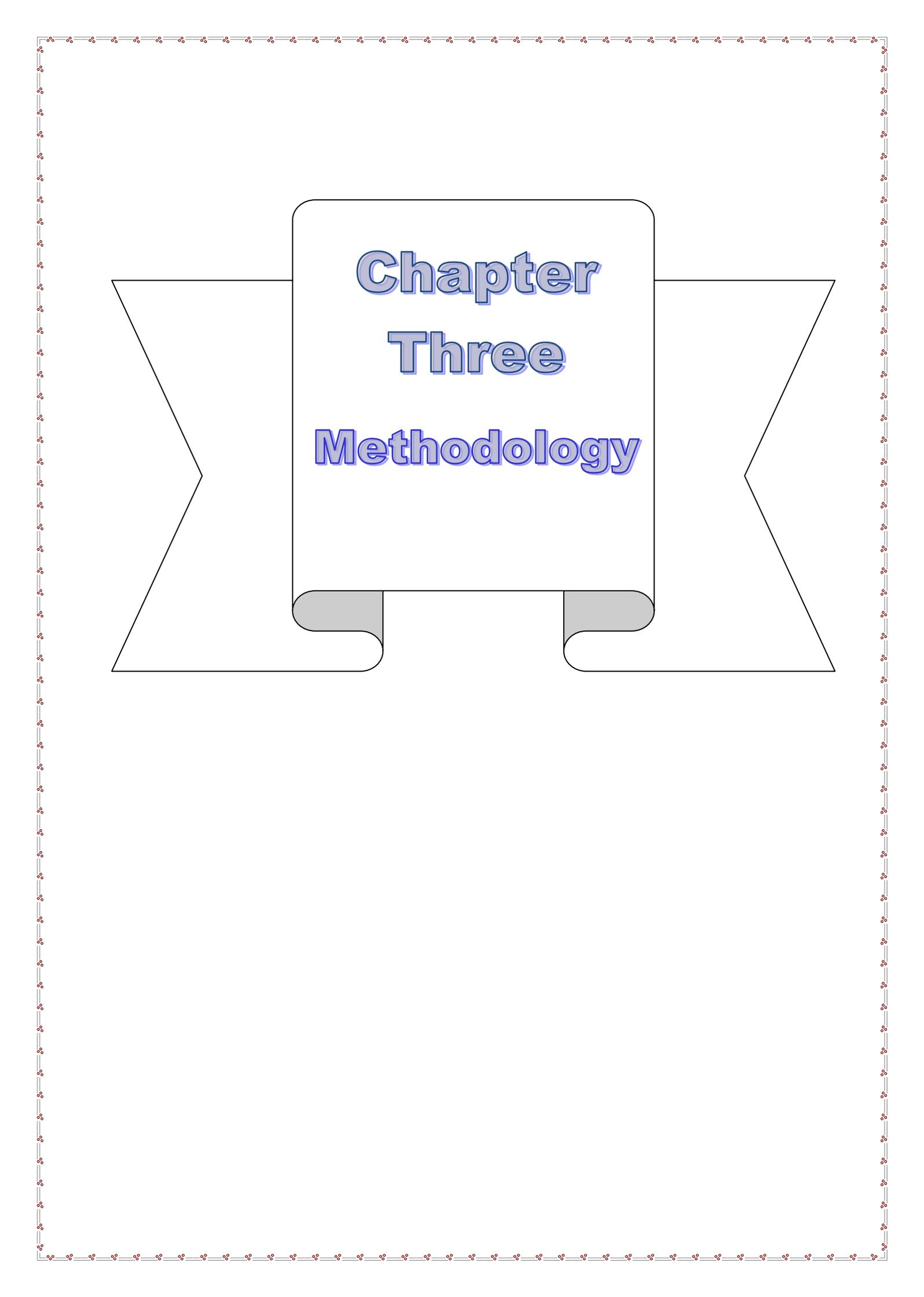
should be administered only when medically required. (Khan *et al.*, 2014; Betran 2 *et al.*, 2016; WHO, 2019).

While the global under-five mortality rate has decreased by 53% since 1990, preventable child deaths remain a major issue in a number of countries. The neonatal period, the first four weeks of life, has been highlighted as a particularly vulnerable stage, with mortality connected mostly with maternal health care during this time. A recent epidemiologic study examined the association between cesarean section delivery and infant death. One study examined data from 46 countries at the national level and discovered that countries with high CS rates experienced an increase in infant mortality. (Sevelsted *et al.*, 2015).

Following Caesarean section, the most often seen infant complications were a poor APGAR score, perinatal hypoxia, neonatal infection, meconium aspiration syndrome, premature birth, and prematurity (Gedefaw *et al.*, 2020).

Prenatal and neonatal development complications include an increased risk of neonatal intensive care unit admission, respiratory morbidity, and mother-infant separation with all of its consequences. (Ilyes *et al.*, 2022).

In 2016, Kupari *et al.* from Finland demonstrated that raising the Caesarean section rate had no effect on the incidence of neonatal hypoxia. Rather than that, their research discovered that CS deliveries resulted in a higher rate of NICU admissions. Recent research has established the efficacy of prenatal steroids in preventing respiratory morbidity in infants delivered via elective cesarean section at late preterm or term gestation (Kupari *et al.*, 2016; Sotiriadis *et al.*, 2018).



**Chapter
Three
Methodology**

Methodology

This chapter including design, sample, setting and method of data collection for the present study conducted at AL Zahraa Teaching Hospital and AL Hakeem Teaching Hospital.

3.1. Design of study:-

A descriptive analytic study carried out for women during and after (VD &CS) who attending to AL Zahraa Maternity Teaching Hospital in AL Najaf AL Ashraf city was conducted to identify the complications during and after birth (VD& CS) .During period from 15th July to 28thDecember. 2021.

3.2. Administrative arrangement:

1- The formal agreement obtained from Scientific Assistant to the Dean of the Faculty of Nursing \ University of Babylon.

2-The formal agreement obtained from Health Directorate Al-NajafAL Ashraf / to AL Zahraa teaching hospital and AL Hakeem teaching hospital at L Najaf AL Ashraf city in. 29/5/2021 (appendix A)

3- The formal agreement obtained from AL Zahraa Teaching Hospital (appendix A)

4- The formal agreement obtained from AL Hakeem Teaching Hospital (appendix A)

3.3. Setting of study: -

Present study was carried out at delivery room and maternity wards ALZahraa Teaching Hospital and AL Hakeem Teaching Hospital at ALNajaf AL Ashraf city

3. 4. Study sample: -

A purposive sample of (200) women. (100) have cesarean section and (100) have delivered by vagina selected from Hospitals mentions above.

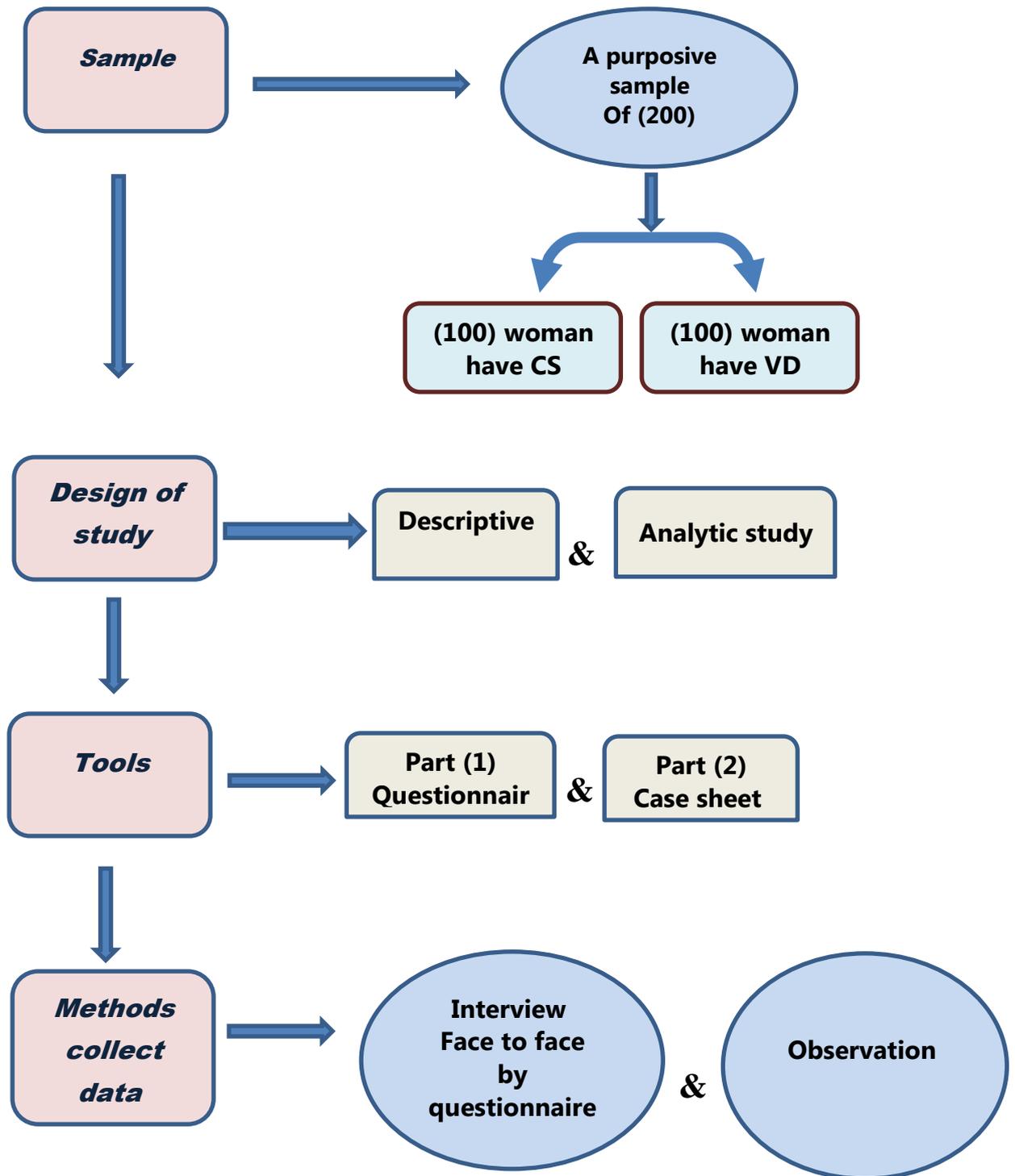


Figure (3-5) the schematic research design of the study

3.5. Inclusion Criteria

1. Mother have caesarean section & normal vaginal delivery
2. Agree to participate in the current study

3.6. Exclusion criteria:

Mother have caesarean section & vaginal delivery that

1. Have chronic and hemolytic disease such as hypertension and diabetes.
2. Disagree to participate in the current study

3.7. Instrument of study

At Tools used to collect data by using questionnaire format comprehensive evaluation of review literature and research. (Appendix C)

3.8. A Questioner of The research instrument consisted of (five) parts

3.8. A.1. Part 1 of the questionnaire:

The demographic data include the following: Current age, educational level, and residency, occupation, and Body mass index pre and after pregnancy.

3.8. A.2. Part 2 of the questionnaire:

Reproductive variables This part involves; that concerned Age at marriage, Gravidity, Parity, Abortion, Infertility, Interval between last pregnancies, Mode of delivery for last baby and Number of live baby

3.8.A.3. The part 3 of the questionnaire

Family and personal history for woman include (5) items family history that have (7) sub items, Personal past Obstetric history that have (4) sub items, Personal present obstetric history that have (8) sub items and Surgery history

3.8. A.4. The part 4 of the questionnaire

Mode of delivery that composed of cesarean section (type of cesarean section, If emergency what was the Indications of cesarean section, ask mother if have complications during and after cesarean section when the mother answered yes ask here about complications in sub items, followed by questions about type of anesthesia, complications during and after anesthesia in addition, take information of women from case sheet

Other mode of birth vaginal delivery include question if have complication during and after vaginal labour , followed by complication during and after vaginal labour in sub items, also take information about women from case sheet .

3.8. A.5. The part 5 of the questionnaire

status of neonate contain of (7) items Body weight for newborn, gender of newborn, Condition of baby, if newborn have complication during and after cesarean section dependent on sub items and if newborn have complication during and after vaginal labour according sub items.

3.8. B. case sheets of women it contain diagnosis and laboratory test and investigation.

3.9. Validity of the instrument:

The content validity of the questionnaire is determined by a committee of experts who review the questionnaire's content for appropriateness and clarity in order to achieve the study's objectives. Preparatory questionnaire created and distributed to (15) experts from various domains with a minimum of five years of experience (Appendex D)

3.10. Pilot Research

Purposeful selection Between June 1st and July 12th, 2021, a sample of twenty women (ten had cesarean sections and ten had regular vaginal

deliveries at AL Hakeem General Teaching Hospital in AL Najaf AL Ashraf. The goal of the pilot study was to:

- 1-determine the research's validity and feasibility.
- 2- To ascertain the questionnaire's reliability
- 3-to determine the average time required for interviewing and observation, each interview took fifteen to twenty minutes and observation time was unlimited.
- 4- To confirm the questionnaire's content that has to be updated.
- 6- To ascertain the study's obstacles. Furthermore, table (2) shows the determination of the pilot \sanalysis's reliability; this conclusion implies that the pilot study's dependability is good & appropriate. Furthermore, the following conclusions may be made from the pilot study:

- 1- The questionnaire's sections were basic and intelligible, although some needed minor modifications.
- 2- For every interview requires from 15 and 30 minutes

3. 11. Reliability

The tool's reliability, as determined by the primary statistical parameter: The work of Alpha Cranach because the results demonstrated a statistically acceptable degree of stability and internal consistency for the primary inquiry fields at the level of relevant tool items. As shown in Table (2), the instruments created were adequate for studying the occurrences. Of study domains and the reliability for Complications of **CS** was (0.76) and the reliability Complications of **VD** (0.72) by using Alpha Cronbach.

Table (3-2) Reliability of the questionnaire by using coefficient of alpha Cronbach's alpha

items	sample	Alpha Cronbach's	Acceptable value	Assessment
Complications of CS	10	0.76	0.71_ 0.91	pass
Complications of VD	10	0.72	0.71_ 0.91	Pass

3.12. Data collection:

Data were gathered through the use of the interview approach in conjunction with the research instrument. By ask every woman if she have chronic, hemolytic and bad past obstetric disease history or Disagree to participate in the current study.

By direct interview for every women & her relative about Complications during and after (CS & VD), also take information about that women in this study from case sheet and took mobile number of these women and followed up her condition within a month after giving birth to Sure if she have complications at this time.

However, the data collection process stared from 15th July to 28thDecember, 2021.

3. 13. Limitation

Throughout the current examination, the study encountered the following significant issues was difficulties and constraints Refuse some women to answered questions in the study because of fear from infected corona virus.

3.14. Statistical data analysis

A. Descriptive statistic: -

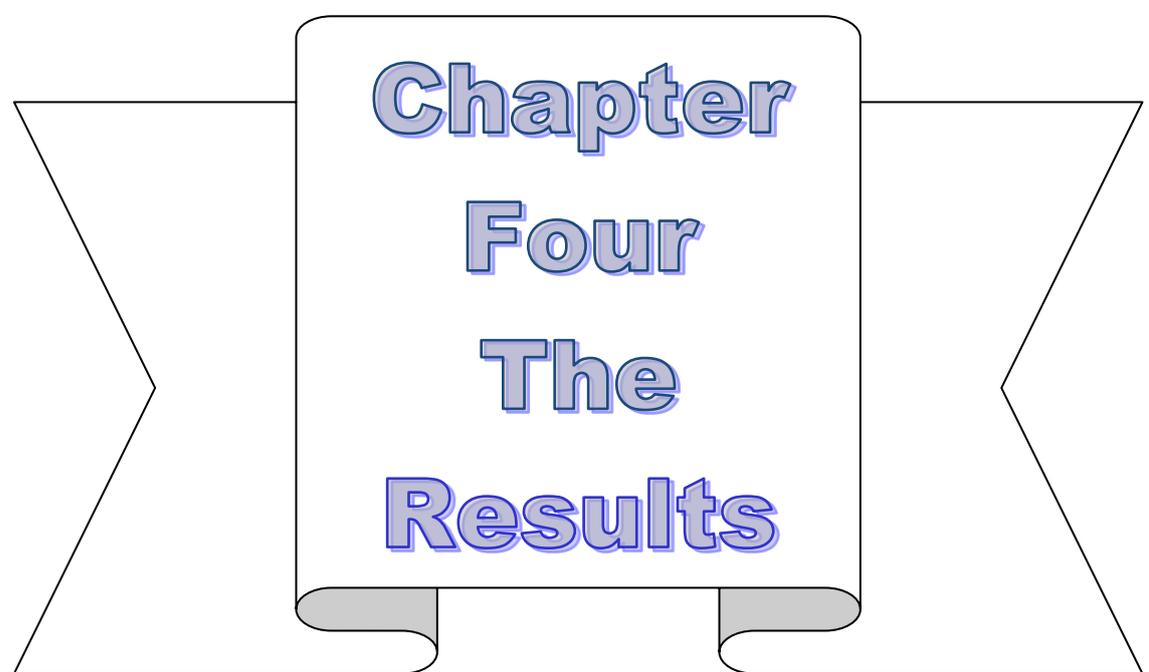
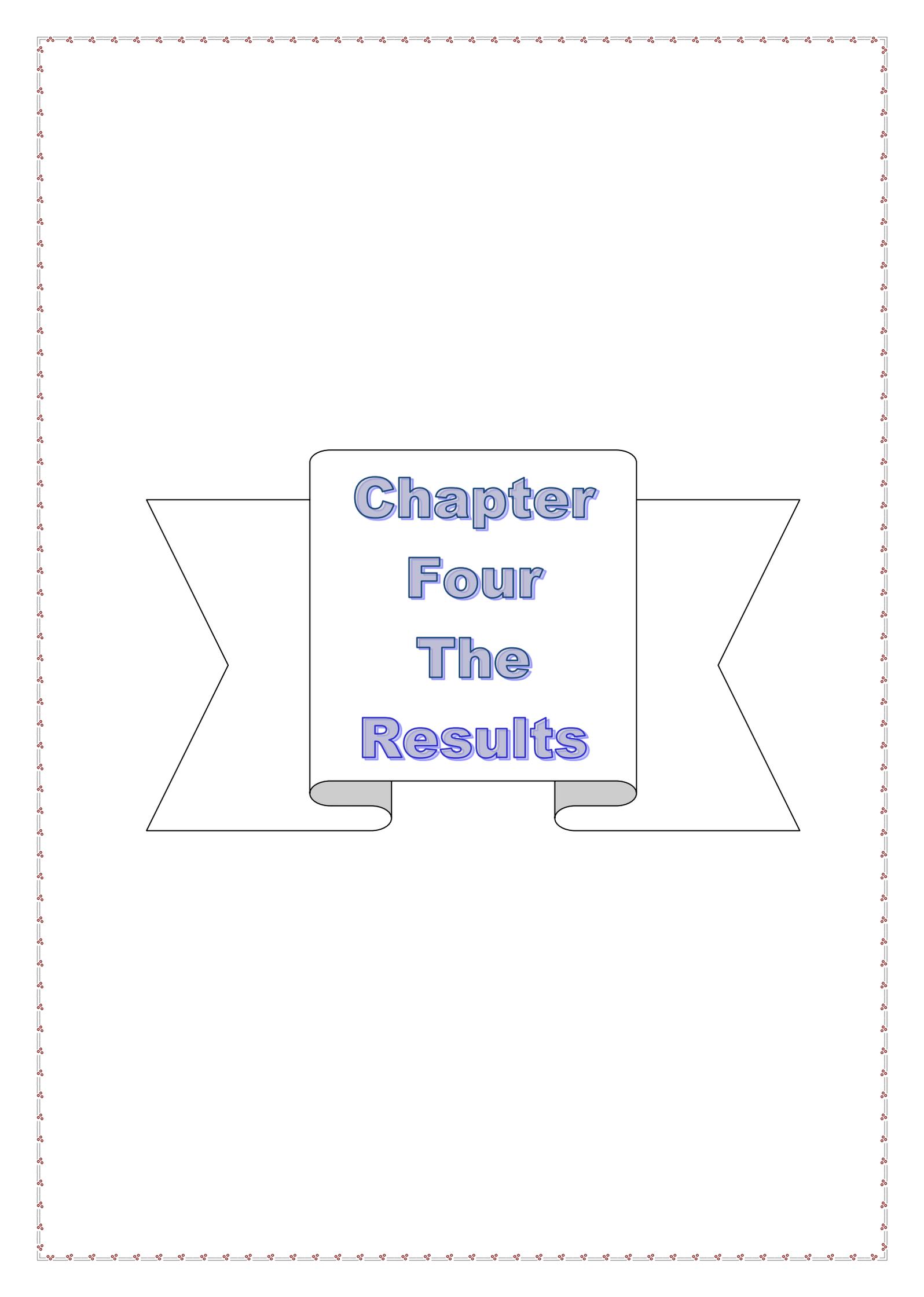
The following statistical tests are utilized to examine the study's data using the statistical software SPSS.

The following statistical tests were used:

1. Frequency (A frequency or absolute frequency) of occurrence is defined in statistics as the number of times an observation occurred/was recorded during an experiment or study.
2. Percentage (%): In mathematics, a percent is a number or ratio given as a decimal fraction of one hundred. (From the Latin per centum, which means "by a hundred").It is commonly denoted with the percent symbol, "percent ".

B. Inferential included

1. **Chi square test (χ^2):** computes the difference between the observed and expected frequencies of an event's outcomes.
Factor analysis is a technique for reducing a huge number of variables into a manageable number of components. This approach aggregates the largest common variances of all variables into a single score.
2. **α Alpha Cronbach's It:** is used to ascertain the research tool's internal consistency. (Ingham, 2014).
3. **Body mass index:** by the formula is $BMI = \text{kg}/\text{m}^2$ where kg is a person's weight in kilograms and m^2 is their height in metres squared.



**Chapter
Four
The
Results**

Results

4.1. Part one: Demographical characteristics for study sample

Table (4-3): Statistical Distribution of mothers according to their Demographics Variables. n= (200)

Variables		VD n=100		CS n=100	
		Frequency	%	Frequency	%
Age (years)	Less than 20	18	18	8	8
	20-29	42	42	34	34
	30-39	35	35	49	49
	40 & above	5	5	9	9
	Total	100	100	100	100
Educational level	Illiterate	29	29	21	21
	Elementry	23	23	12	12
	Intermiddle	21	21	14	14
	Institute and above	27	27	53	53
	Total	100	100	100	100
Residence	Urban	96	96	88	88
	Rural	4	4	12	12
	Total	100	100	100	100
Occupation status	House wife	86	86	72	72
	Employee	14	14	28	28
	Total	100	100	100	100
pre pregnancy BMI(kg/m ²)	<25	60	60	51	51
	25-29	31	31	38	38
	≥ 30	9	9	11	11
	Total	100	100	100	100
BMI after delivery (kg/m ²)	<25	49	49	25	25
	25-29	24	24	22	22
	≥ 30	27	27	53	53
	Total	100	100	100	100

CS: Cesarean section. NVD: Normal Vaginal Delivery

Table (4-3) shows that the distribution of mothers with two mode of delivery according to their demographical variables, as it showed that the highest percentage 42% of mothers have VD within the age group (20-29 years old) , while the mothers with CS had high percentage 49% within the

age group(30-39 years old). In item of educational level, it was 53% within the CS group at institute and above level, while 29% for the VD group were illiterate. The residence for the rural the highest had high percentage of mothers within two group (88% CS vs 96% VD). While the occupation show the housewife have highest percentage of mothers in the two group (72% CS vs 86% VD).

The same table shows that the pre pregnancy BMI was <25 for the highest percentage of mothers for tow group (60% CS vs 51% VD) ,the BMI after delivery was ≥ 30 for the highest percentage 53% of mothers had CS group, and it was ≤ 25 for the highest percentage 49% of mothers had NVD group.

4.2. Part two: Reproductive characteristics

Table (4-4): distribution of the mothers with two modes of delivery according to their **Reproductive characteristics**. n=(200)

Variables		VD n=100		CS n=100	
		Frequency	%	Frequency	%
Age at marriage	Less than 20	63	63	47	47
	20-29	29	29	37	37
	30-39	8	8	14	14
	40 and above	0	0	2	2
	Total	100	100	100	100
Gravidity	Primigravida	20	20	36	36
	Multigravida	80	80	64	64
	Total	100	100	100	100
parity	primiparous	31	31	44	44
	Multiparous	69	69	56	56
	Total	100	100	100	100
Abortion	Yes	33	33	45	45
	No	67	67	55	55
	Total	100	100	100	100
Previous Infertility	Yes	3	3	12	12
	No	97	97	88	88
	Total	100	100	100	100
Interval between last pregnancies	primi	34	34	31	31
	Less than 2 year	55	55	49	49
	More than 2 year	11	11	20	20
	Total	100	100	100	100
Mode of delivery before last one baby	primi	31	31	44	44
	Normal vaginal delivery	69	69	16	16
	Cesarean section	0	0	40	40
	Total	100	100	100	100
Number of children	no	31	31	44	44
	1	19	19	8	8
	2 or more	50	50	48	48
	Total	100	100	100	100

Table(4-4) shows the distribution of mothers with two modes of delivery according to their reproductive characteristics data, show that the highest percentage of mothers marriage at age (≤ 20 years) were (%63 VD vs 47% CS), the multi gravida was (80% VD vs. 64% CS) were multi Para,

(69% VD vs 56% CS) have no previous abortion (67% VD vs. 55% CS) while that mothers have previous abortion (33 VD vs 45CS), the mothers with no previous Infertility have high percentage at (97% VD vs. 88 % CS), the mothers with gestational age related with baby for the group age(37-41 Week) have high percentage (95% VD vs. 79% CS), (55% VD vs. 49% CS) for the interval between last pregnancies was (≤ 2 year), and the mode of delivery for last one of women with item **Cesarean section** have 40 % of **CS group** ,16% normal delivery and 44% prim parous , while women with **vaginal delivery** 69% of VD group and 31% prim parous .And the Number of child were ≥ 2 for the highest percentage of mothers were (50% VD vs 48% CS).

4.3. Part Three: past family & personal present history:

4.3. A past family history

Table (4-5): distribution of the mothers with two modes of delivery according to **their family history variables**. (N=200)

Variables	VD	CS	X ²	P Value
	n=100	n=100		
	%	%		
1. Gestational hypertension	38%	23%	5.307	0.031*
2. Gestational diabetes	30%	25%	0.570	0.546
3. Cardiac disease	11%	19%	2.510	0.165
4. Renal disease	5%	2%	1.332	0.445
5. Respiratory disease	9%	19%	8.165	0.007**
6. thyroid disease	7%	12%	3.150	0.126

* p value ≤ 0.05 , **: p value ≤ 0.01 ,

Table (4-5) shows the distribution of mothers with two mode of delivery according to their family history variables and the relationship between the two, as it showed that (38 VD % vs 23% CS) their family have gestational hypertension, the mothers were (30% VD vs 25% CS) their family have gestational diabetes mellitus,

Also the same table shows that (9% VD vs 19 CS %) have family respiratory disease, cardiac disease have (11% VD vs 19% CS), thyroid disease have (7 VD % vs 12% CS). renal disease have (5% VD vs 2% CS).

4.3. B. Personal present obstetric history

Table (4-6): distribution of the mothers with two modes of delivery according to their **Personal present obstetric history**.(N=200)

variables	VD	CS	χ^2	p value
	n=100	n=100		
	%	%		
Polyhydramnios	4%	13%	5.207	0.040*
Oligohydramnios	7%	14%	1.116	1.068
Premature rupture of membranes	5%	8%	0.338	0.561
Umbilical cord prolapse	2%	5%	1.332	0.248

* p value ≤ 0.05 , **: p value ≤ 0.01 .

Table (4-6) shows the distribution of mothers with two mode of delivery according to their Personal present obstetric history data and the relationship between the two, as it showed that (4% VD vs 13% CS) have polyhydramnios, with statistical significance between the two groups ($p=0.040$).in other hand that the . The that mother has were oligohydramnios (7 %VD vs 14% CS) , premature rupture of membranes (VD vs 8% CS), and umbilical cord prolapse (5 % CS vs 2 % VD)

While the table did not show a statistical significance for the difference between the two study groups according to the rest of the variables ($p > 0.05$).

4.4. Part four: Modes of delivery

Figure (4-6) showed that the ratio of the mothers who have Complications *after* CS was more than VD were (56% CS vs 23% VD) this revealed the normal vaginal labor concern safe and best mode of delivery

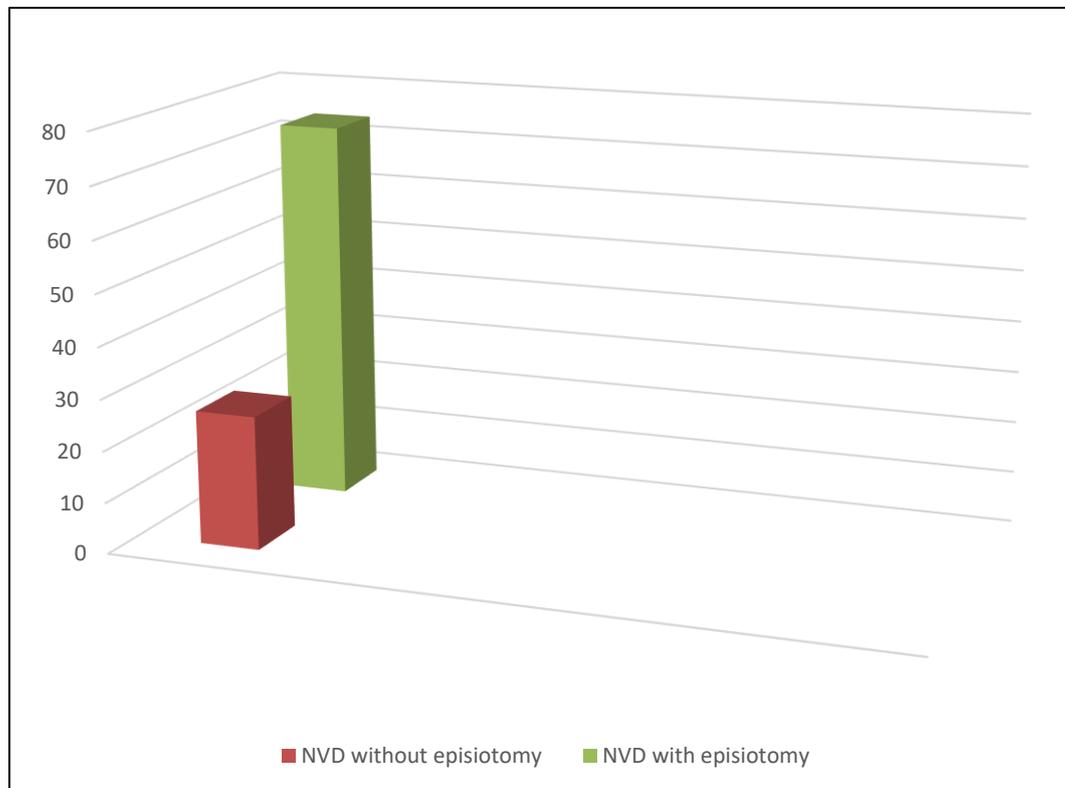


Figure (4-6) ratio of the mothers who have VD with and without episiotomy.

The figure (8) showed that percent of women who have normal delivery with episiotomy 74%, while the women have normal delivery without episiotomy was 26%.

4.4. A Types Caesarean section

Table (4-7) distribution of the mothers according to their type of cesarean section & the Indications of CS.

items		N= 100	
		N	%
type of caesarean section	Elective	25	25
	Emergency	75	75
Indication of emergency of c/s*	Failure to progress of labor	42	56
	Breech presentation	4	5
	Repeated CS	28	36
	uterine fibroid	2	3
	umbilical cord prolapse	2	3

* There are more than one answer for each choose

Table (4-7) shows that distribution of samples according to their type of delivery and the Indications of CS, as it showed that three-quarters 75% of the CS were emergency and the remaining quarter 25% were Elective.

In terms of indications for emergency CS, the Failure to progress of delivery was the highest percentage 56% among the indication. Followed by Repeated CS (previous uterine scar) were 36% of mothers have indication of emergency cesarean section, Breech presentation was 5%, then have percent 4% Also, cyst in uterine and umbilical cord prolapse have same percent 3% of the CS were emergency Indications.

4.4 B. vaginal delivery

Table (4-8) distribution of mothers with NVD modes of delivery according to their Complications **during** NVD n=100

Complications <i>during</i> VD	%
Excessive bleeding	2%
Second-degree Perennial laceration	1%

Table (4-8) shows the distribution of mothers with VD mode of delivery according to their Complications during VD, as it showed that 3% of them have had Complications during VD. The excessive bleeding complication was (2)2% women that have complications during VD. Followed by one woman has perennial laceration by (1)1%.

Table (4-9) distribution of mothers with VD mode of delivery according to their Complications **after** VD. N=100

complications <i>after</i> VD	%
Infection of Episiotomy	13%
puerperal infection	10%
Severe anemia	6%
Urinary tract infection	6%
Episiotomy dehiscence (wound separation)	5%
Immediate postpartum hemorrhage	3%

Table (4-9) shows the distribution of mothers with VD mode of delivery according to their complications after VD, as it showed that 23% of them have had complications after VD. The puerperal infection complication was for the highest percentage of mothers 10%, infection of episiotomy have 13%, urinary tract infection 6% followed by Severe

anemia by 6%, episiotomy dehiscence (wound separation) were 5% and, and immediate postpartum hemorrhage 3%.

4.5. C Cesarean section

Table (4-10) distribution of mothers with CS modes of delivery according to their Complications **during** CS. N=100

items complications <i>during</i> CS	%
Hemorrhage	13%
Bladder injury	1%
Uterine rapture	3%
hysterectomy	2%

Table (4-10): shows the distribution of mothers with CS mode of delivery according to their Complications during CS, as it showed that 16% only of them have had Complications during CS.

The hemorrhage was for all mothers 13% that have complications during CS. Followed by uterine rapture 3%, then bladder injury 1% and hysterectomy 2%.

Table (4-11) distribution of mothers with CS modes of delivery according to their Complications **after** CS n=100

complication <i>after</i> CS	%
Severe Anemia(hemoglobin level < 7 g/dl)	28%
Wound infection	13%
Constipation	10%
Urinary tract infection	10%
Early postpartum Hemorrhage	9%
Puerperal pyrexia Infection	2%

Table (4-11) shows the distribution of mothers with CS mode of delivery according to their complications after CS, as it showed that 56% of them have had complications after CS.

Severe anemia (hemoglobin level < 7 g/dl) in the rate of 28%, wound infection was 13%, constipation was 10%, and urinary tract infection in the rate of 10%, early postpartum hemorrhage was 9% and puerperal pyrexia infection were 2% of the percent of the mothers' participant in this study.

4.5 Anesthesia & complications related anesthesia

Table (4-12) distribution of mothers according to their type anesthesia **type and Complications during and after it.**

Variables		n= 100	
		n	%
The type of anesthesia	Spinal blockade	77	77
	General anesthesia	23	23
Complications with spinal anesthesia n=77	yes	34	44%
	no	43	66%
Complications with general anesthesia. N=23	yes	21	91%
	no	2	8%

Table (4-12): shows the distribution of mothers according to their anesthesia type and complications during it, as it showed that spinal blockade was the anesthesia type for 77% of the mothers, general anesthesia for 23%. It also showed that 21% of the mothers Have complications related to general anesthesia, while 34 % of mothers have complications related spinal anesthesia. Table (4-13) distribution of mothers according to complications of **general anesthesia**

complications related to general anesthesia	%
Sore throat with pain larynx	43%
Post-operative Nausea & Vomiting	39%
Constipation	26%

Table (4-13) revealed number of cases related to general anesthesia, the findings were, Sore throat with larynx pain occurred in the highest

proportion of mothers 43%, nausea& Vomiting was 39%, , and constipation 26% .

Table (4-14) distribution of mothers according to complications of **spinal anesthesia**

complications related to spinal anesthesia	%
Post spinal Back Pain	23%
Headache	8%
Constipation	9%
hypotension during spinal anesthesia	5%

Table (4-14) revealed number of cases related to spinal anesthesia, the result were post spinal back Pain 23%, headache 8% constipation were 9%, and hypotension during spinal anesthesia were 5% of mother have complications related spinal anesthesia .

Table (4-15) Association between presences of complications **during** both modes of delivery and maternal demographical data.

Variable	Have Complications <i>during</i>							
	VD				CS			
	χ^2	<i>P Value</i>	<i>D.f.</i>	<i>Sig.</i>	χ^2	<i>P Value</i>	<i>D.f.</i>	<i>Sig.</i>
Age (years)	7.757	0.049*	2	(S)	18.488	0.000**	4	(HS)
Educational level	4.011	0.395	8	(NS)	4.537	0.287	9	(NS)
Residence:	0.00	1	4	(NS)	5.877	0.036*		(S)
Occupation	2.769	0.096	4	(NS)	5.303	0.034*	5	(S)
pre pregnancy BMI (kg/m²)	1.650	0.461	6	(NS)	2.118	0.347	2	(NS)
BMI after delivery (kg/m²)	0.359	0.843	3	(NS)	9.917	0.006**	2	(HS)

NS: Non-significant (NS) (≥ 0.05), (S) significant ($p < 0.05$), (HS) high significant < 0.01 ,

Table(4-15) shows the Association between presences of Complications **during** both mode of delivery and maternal demographical data, as it showed that there is a significant association between presences of complications during VD and maternal Age ($p = 0.049$). While there is no significant association with the rest of the demographic variables educational level ($p = 0.395$), residence ($p = 1$), occupation ($p = 0.096$), pre pregnancy (0.461) and BMI at delivery (0.843).

The same table showed the presence of a high significant association between presences of Complications during CS and maternal age ($p = 0.000$), BMI at delivery (0.006), residence ($p = 0.036$) and occupation ($p = 0.034$). While have no significant association with educational level ($p = 0.287$), and pre pregnancy BMI (0.347).

Table (4-16) Association between presences of complications **after** both modes of delivery and maternal demographical data.

Variable	Have complications AFTER							
	VD				CS			
	X^2	<i>P Value</i>	<i>D.f</i>	<i>Sig.</i>	X^2	<i>P Value</i>	<i>D.f</i>	<i>Sig.</i>
Age (years)	5.877	0.036*	9	(S.)	8.961	0.362	6	(NS)
Education level	5.081	0.158	4	(NS)	3.281	0.358	2	(NS)
Residence	1.715	0.190	4	(NS)	0.630	0.542	4	(NS)
Occupation	0.698	0.512	6	(NS)	0.093	0.824	4	(NS)
pre pregnancy BMI (kg/m ²)	0.359	0.84	8	(NS)	50.00	0.000*	7	(HS)
BMI after delivery (kg/m ²)	2.165	0.517	4	(NS)	79.720	0.000*	9	(HS)

NS: Non-significant (NS) (≥ 0.05), (S) significant ($p < 0.05$), (HS) high significant < 0.01 ,

Table (4-16) shows the association between presences of complications **after** both mode of delivery and maternal demographical data, as it showed that there is a significant association between presences of complications after VD and maternal Age ($p = 0.036$), while high significant association with pre pregnancy BMI (0.000), While there is no significant association with the rest of the demographic variables educational level ($p = 0.158$), residence ($p = 0.190$), occupation ($p = 0.512$) pre pregnancy BMI (0.843) and BMI at delivery (0.517).

The same table shows that there is significant association between presences of complications after CS and maternal Age ($p = 0.362$) and high significant with pre pregnancy BMI (0.000) & BMI at delivery (0.000) but have no significant to educational level ($p = 0.358$), residence ($p = 0.542$), occupation ($p = 0.824$) and complications after CS.

Table (4-17) association between presences of complications **during** both modes of delivery and maternal reproductive characteristics.

Variable	Have complications <i>during</i>							
	VD				CS			
	<i>X</i> ²	<i>P Value</i>	<i>D .f.</i>	<i>Sig.</i>	<i>X</i> ²	<i>P Value</i>	<i>D .f.</i>	<i>Sig.</i>
Age at marriage	2.130	0.380	6	(NS)	10.639	0.419	3	(NS)
Gravidity	0.825	0.692	8	(NS)	2.650	0.235	3	(NS)
Parity	1.311	0.252	3	(NS)	1.310	0.333	3	(NS)
Abortion	1.311	0.252	4	(NS)	0.192	0.661	6	(NS)
Previous Infertility	0.115	0.735	2	(NS)	0.174	0.677	9	(NS)
Interval between last pregnancies	14.211	0.001**	6	(HS)	1.648	0.401	2	(NS)

NS: Non-significant (NS) (≥ 0.05), (S) significant ($p < 0.05$), (HS) high significant < 0.01 ,

Table (4-17) revealed the association between presences of complications during both mode of delivery and maternal reproductive characteristics, as it showed that there is a high significant association between presences of complications during VD and interval between last pregnancies, while, no relationship with Age at marriage, gravidity, parity, abortion and previous Infertility.

The Same table showed NO significant association between presences of complications during CS and reproductive characteristics.

Table (4-18) Association between presences of Complications **after** both modes of delivery and maternal reproductive characteristics.

Variable	Have complications <i>after</i> delivery							
	VD				CS			
	<i>X</i> ²	<i>P Value</i>	<i>D.f</i>	<i>Sig.</i>	<i>X</i> ²	<i>P Value</i>	<i>D.f</i>	<i>Sig.</i>
Age at marriage	0.258	0.934	4	(NS)	10.639	0.623	2	(NS)
Gravidity	1.282	0.554	6	(NS)	1.908	0.917	4	(NS)
Parity	1.064	0.302	2	(NS)	0.932	0.669	8	(NS)
Abortion	5.142	0.023*	4	(S)	2.664	0.265	6	(NS)
Previous Infertility	10.35 4	0.001**	4	(HS)	1.382	0.501	4	(NS)
Interval between last pregnancies	3.498	0.193	2	(NS)	14.931	0.005**	4	(HS)

NS: Non-significant (NS) (≥ 0.05), (S) significant ($p < 0.05$), (HS) high significant < 0.01 ,

Table (4-18) revealed the association between presences of Complications **after** both mode of delivery and maternal reproductive characteristics that showed high significant association between presences of complications **after** CS and interval between last pregnancies .but no significant association with other reproductive characteristics.

Same table showed high significant association between presences of Complications **after** VD and maternal Infertility, while, significant association with maternal abortion but, no association with age at marriage, gravidity, parity and interval between last pregnancies.

4.8. Part five: the Neonate

Table (4-19) Statistical Distribution of newborn according to their Demographics Variables. (n=200)

Variable		VD n=100		CS n=100	
		frequency	%	frequency	%
Body weight for newborn	≤1000g	0	0	0	0
	1000-1500g	2	2	6	6
	1500-2000g	18	18	6	6
	≥ 2500g	80	80	88	88
Gestational age	(≤37)	5	5	14	14
	(38- 41)	95	95	86	86
	(>42)	0	0	0	0
gender of newborn	male	55	55	62	62
	female	45	45	38	38
Condition of baby	Alive	100	100	98	98
	Dead	0	0	2	2

Table (4-19) shows that distribution of mothers with two mode of delivery according to their babies data, as it showed that the highest percentage of new born in the two group (80% VD vs 88% CS) were the newborns with body weight (> 2500g), related gestational age the high percent for gestational age (38-41) was (95% VD vs 86% CS)The highest percentage of mothers in the two group (55% VD vs 62% CS) were have had newborns of male gender, and (100% VD vs 98% CS) were have had alive newborns.

Table (4-20) distribution of newborn complications outcomes *during* VD delivery.

Variables	%
Cephalohematoma	1%

Table (4-20) revealed the distribution of mother's babies with VD delivery mode according to their complications during VD, as it showed that 1% of them have had complications during VD. That complications was Cephalohematoma.

Table (4-21) distribution of newborn complications outcomes *after* VD and CS .

Newborn complications	VD n=100	CS n=100
	%	%
Hypoglycemia	2%	13%
neonatal sepsis	1%	5%
first min. APGAR <7	5%	24%
fifth min. APGAR <7	2%	5%
jaundice	4%	12%
Neonatal deth	0	2%

Table (4-21) shows the distribution of newborn complications related VD delivery as it showed the first min. APGAR <7 was (5%), fetal jaundice was (4%). Followed by fifth min. APGAR <7 and Hypoglycemia have same rate 2% and for neonatal sepsis of the newborns have 1%.

Same table clarify the distribution of newborn complications **after** CS, as it showed the first min. APGAR ≤ 7 was for most newborns 24% then Hypoglycemia in the rate of 13%. Followed by **jaundice** in the rate of

12%, fifth min. APGAR <7 with fetal sepsis in the rate of 5% and fetal death after cesarean section were 2%.

Table (4-22): Association between presences of **newborn complications during** both modes of delivery and maternal demographical data.

Variable	Newborn have complications <i>during</i>			
	VD			
	<i>X</i> ²	<i>P Value</i>	<i>D.f.</i>	<i>Sig.</i>
Age (years)	24.242	0.000**	4	(HS)
Educational level	2.570	1	2	(NS)
Residency	3.992	0.710	8	(NS)
Occupation status	0.154	0.685	6	(NS)
pre pregnancy BMI (kg/m ²)	2.000	0.368	2	(NS)
BMI after delivery (kg/m ²)	1.005	0.316	2	(NS)

NS: Non-significant (NS) (≥ 0.05), (S) significant ($p < 0.05$), (HS) high significant < 0.01 ,

Table (4-22) represent the association between presences newborn complications during both mode of delivery and maternal demographical data, as it showed that there is a high significant association between presences of complications during VD and maternal Age ($p = 0.000$), While there is no significant Association with the rest of the demographic variables residence ($p = 0.710$), educational level ($p = 1$), occupation ($p = 0.685$), pre pregnancy (0.368) and BMI at delivery (0.316).

Table (4-23): Association between presences of **newborn complications after** both modes of delivery and maternal demographical data.

Variable	Newborn have complications <i>after</i>							
	VD				CS			
	X ²	P Value	D .f	Sig.	X ²	P Value	D .f	Sig.
Age (years)	14.313	0.000* *	4	(HS)	4.972	0.295	4	(NS)
Education level	0.912	0.942	6	(NS)	3.526	0.326	2	(NS)
Residence	3.842	0.379	4	(NS)	0.103	0.748	4	(NS)
Occupation	1.039	0.308	2	(NS)	0.897	0.343	4	(NS)
pre pregnancy BMI (kg/m ²)	5.023	0.284	3	(NS)	6.756	0.091	6	(NS)
BMI after delivery (kg/m ²)	2.118	0.347	6	(NS)	9.917	0.006**	3	(HS)

NS: Non-significant (NS) (≥ 0.05), (S.) significant ($p < 0.05$), (HS) high significant < 0.01 ,

Table (4-23) clarify the association between presences of newborn complications after both mode of delivery and maternal demographical data, as it showed that there is a high significant association between presences of newborn complications after VD and maternal Age ($p = 0.000$), While there is no significant association with the rest of the demographic variables residence ($p = 0.379$), educational level ($p = 0.942$), occupation ($p = 0.308$), pre pregnancy BMI (0.284) and BMI at delivery (0.347).

The table shows that there is no significant association between essences of Newborn complications after CS and all demographic variables age ($p = 0.295$), educational level ($p = 0.326$), residence ($p = 0.748$), occupation ($p = 0.343$) and pre pregnancy BMI (0.091), except association of it with BMI at delivery (0.006)

Table (4-24): Association between presences of **newborn complications during** both modes of delivery and maternal reproductive variables

Variable	Have complications <i>during</i>			
	VD			
	X ²	P Value	d.f	Sig.
Age at marriage	2.118	0.347	2	(NS)
Gravidity NO	3.537	0.171	4	(NS)
Parity	3.537	0.171	9	(NS)
Abortion	6.756	0.091	4	(NS)
Infertility	2.510	0.165	6	(NS)
Interval between last pregnancies	5.838	0.016*	3	(S)

NS: Non-significant (NS) (≥ 0.05), (S.) significant ($p < 0.05$), (HS) high significant < 0.01 ,

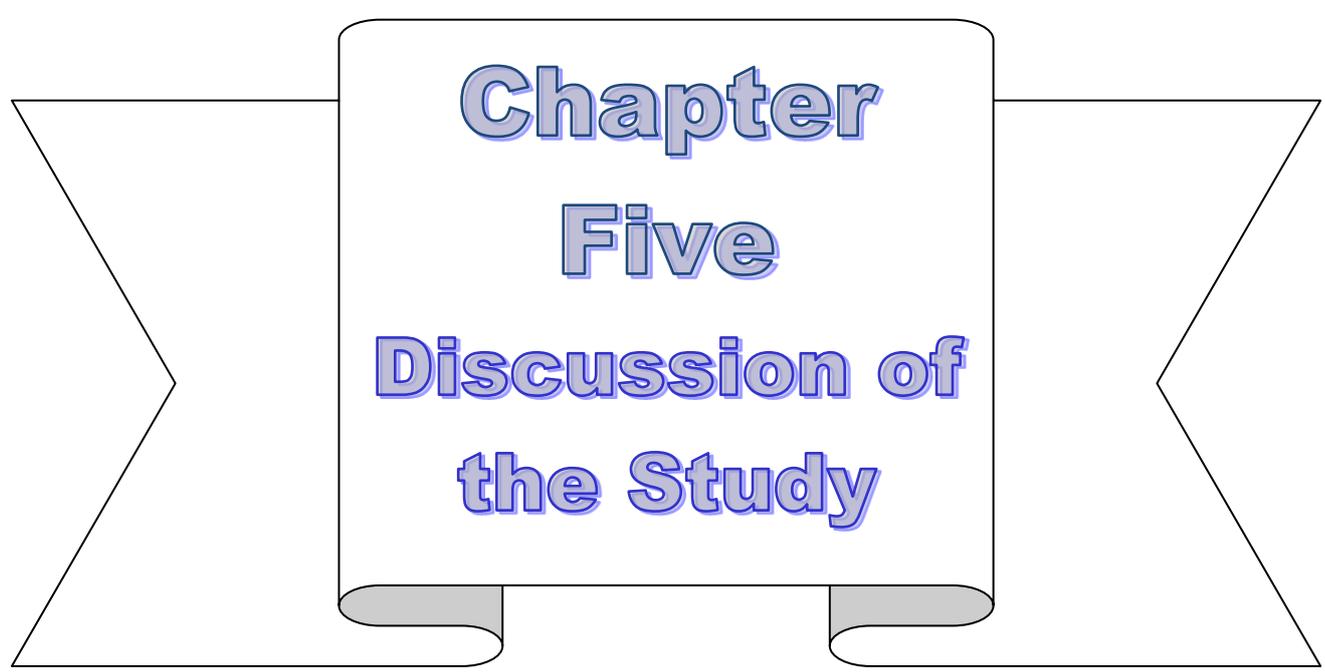
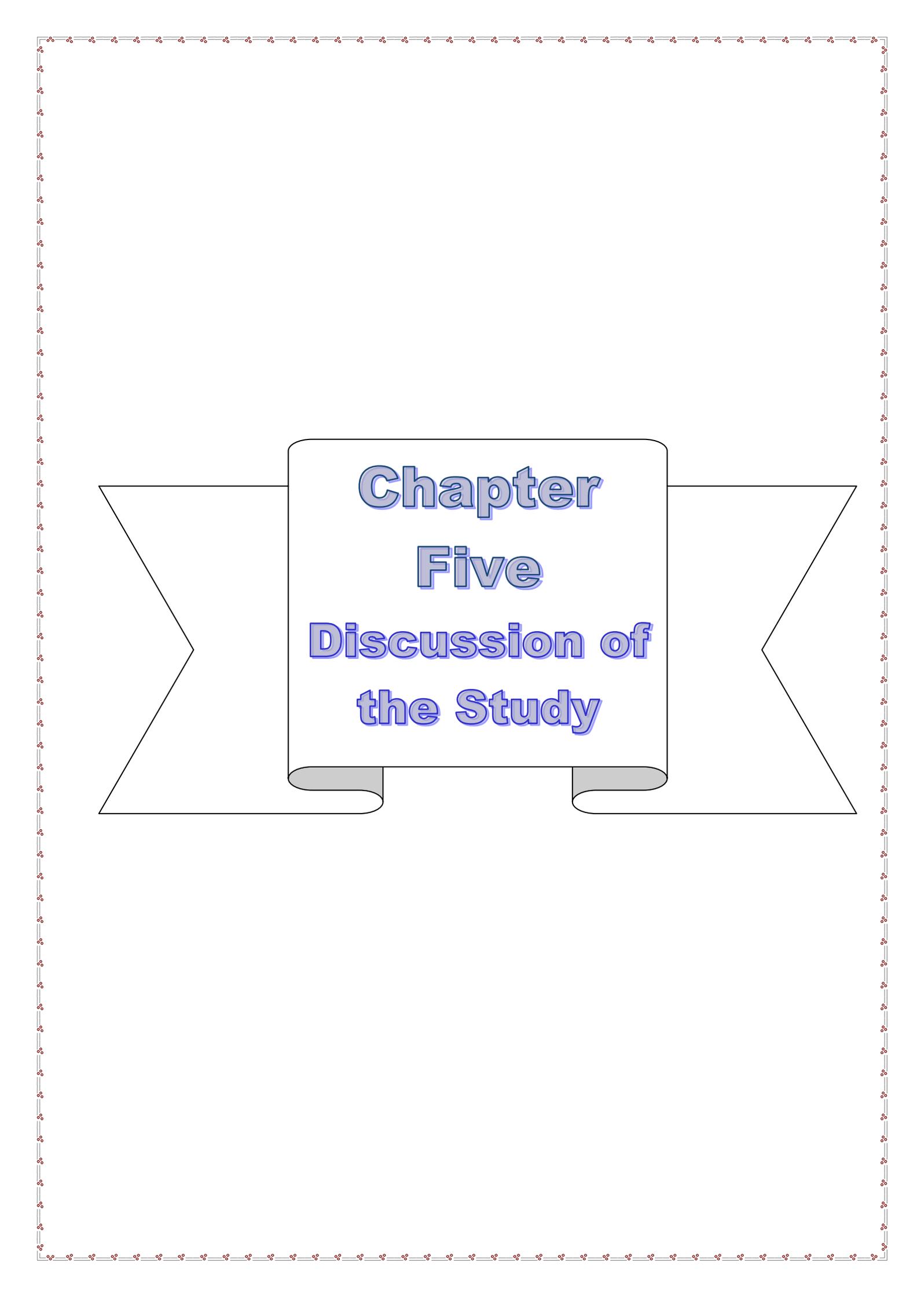
Tble (4-24) showed that there is a significant association between presences of newborn complications during VD and interval between last pregnancies but no association with other maternal reproductive variables.

Table (4-25): Association between presences of **newborn complications after** both modes of delivery and maternal reproductive variables.

Variable	Have complications <i>after</i>							
	VD				CS			
	X ²	P Value	d.f	Sig.	X ²	P Value	d.f	Sig.
Age at marriage	3.150	0.126	4	(NS)	1.009	0.115	4	(NS)
Gravidity	2.000	0.368	6	(NS)	0.570	0.346	3	(NS)
Parity	1.332	0.248	6	(NS)	5.701	0.017*	3	(S)
Abortion	3.670	0.158	2	(NS)	0.031	0.361	3	(NS)
Previous Infertility	0.338	0.161	4	(NS)	2.165	0.217	4	(NS)
Interval between last pregnancies	5.407	0.131	2	(NS)	0.072	0.388	6	(NS)

NS: Non-significant (NS) (≥ 0.05), (S.) significant ($p < 0.05$), (HS) high significant < 0.01 ,

Table (4-25) clarify the association between presences of newborn complications after both mode of delivery and maternal reproductive data, as it showed that there is a significant association between presences of newborn complications after CS and maternal parity, but no relation between newborn complications after VD and maternal reproductive data.



**Chapter
Five
Discussion of
the Study**

Discussion

5.1. Discussion of Demographic Characteristics

In the present study, the high percent of sample in the study is of women within the **group age (20 -29) age years** (42%) for woman have **vaginal delivery** and the group age (30 -39) have (49%) for women have **cesarean section** This result agrees with studies conducted done By (Maalim & et al., 2017), study done in Nigeria (Envuladu & *et al.*, 2013) and study conducted by (Wang & et al.,2020). Older women are at increased risk for cesarean birth in part because they are more likely to undergo cesarean delivery without labor. However, even among those women who labor, older women are more likely to require cesarean birth, regardless of whether labor is spontaneous or induced.

In terms of **educational level**, was high percent in the CS group at Institute and above level, And NVD have high percent with women illiterate, This findings was in agreement with a research by (Naa Gandau & et al.,2019) which found that high educated moms have high percent of CS. This might be because educated moms can quickly acquire and utilize relevant information to help them make informed birth choices. However this finding disagreement with results of study carried out by (Hassan et al., 2016) which found high percent of women (CS & VD) have primary level education. This is explained by the rising susceptibility of the lowest educational group as a result of considerable social migration, as well as the recent rise in cesarean section on maternal request among the lowest educated.

Regarding the **Residency and occupation** was the large percent women live in urban & house wife, this finding agreement with study by (Hassan *et al.*, 2016) and disagree with finding of study done by (Abebaw et al., 2020) that showed the percent of CS women in urban more than

women with VD. Also this result disagree with the study done by (Fagbamigbe & Idemudia, 2015). This deferent in result in deferent size of sample or research sitting

The result showed that the **pre pregnancy BMI was ≤ 25** for the highest percentage of mothers in the two group (CS vs VD) that agree with study by (Sun & et al., 2020) and result of study by Bjorklund et al., 2022

In other hand, this result disagree with study conducted in Taiwan by (Chen et al., 2020) that Pre-pregnancy BMI were high in ≥ 30 (obesity)

In regard **BMI after delivery (kg/m^2)**, study conducted by (Al-Kubaisy & et al., 2014) in Iraq who found the total mean body mass index (BMI) across the average weight of mothers who delivered by cesarean delivery and vaginal delivery was $30 \text{ kg}/\text{m}^2$. The finding agree with result related to mothers with cesarean section, but, was disagreement with women how had VD.

Moreover, there is compatibility this result with study by (Pettersen-Dahl et al., 2018) revealed the probability of emergency cesarean birth rose with maternal BMI, more than doubling in obese women (BMI 30) compared to women who were underweight or normal weight. While women with a normal BMI had spontaneous pregnancies.

There was a significant interaction between BMI and style of delivery, such that the links between C-Section and overweight/obesity were confined to the manner of delivery. So, BMI has a more direct effect on the success of caesarean section because it takes pregnancy weight increase into account.

5.2. Reproductive characteristics of women participant.

Their Reproductive characteristics data showed that the highest percentage of mothers in the group (63% CS vs 47% NVD) were **marriage at age** (≤ 20 years) this similar that the **results of** study by (Roy & et al., 2021).

Other study done by (Azuh et al., 2017) also supported the present finding who found the result of early marriage exposes her to the danger of pregnancy and child birth difficulties for an extended period of time.

And **multigravida, Multiparous** in women with cesarean section 80%, 69% more than women with VD 64 %, 56% respectively. This result agreement with study conducted by (Al-Rifai et al, in 2021), (Omona, 2020), (Alheshimi et al .2019) and (Thanh, et al, 2019). The fact that primigravida women had a greater rate of CS births can be explained. Because they had no prior experience, primigravida women had a higher rate of CS births, which can be explained by their fear of pain and the severe pregnancy outcomes linked with vaginal deliveries. They were afraid of discomfort and were concerned about the risks of pregnancy outcomes linked with vaginal births because they had no prior experience.

On the other hand the woman in in this study **have history abortion** (33% VD vs 45% CS) and **previous infertility** (3% VD vs 12% CS) this result consistent with studies by (Evers & et al., 2014), (Kjerulff & et al., 2013) and study done by (Akalewold & et al., 2022).

Concerning the **Interval between last pregnancies** were (less than 2 year) has high percent with tow mode of labour ,that which disagree with study conducted by (Hua & El Oualja, 2019) and study by (Aleni & et al., 2020) that cancelled More women participant in study had over a 2-year interval since the last birth.

Related Mode of delivery before last one baby where prim gravida were high rate and the women have normal vaginal delivery (69%) without have history cesarean section last birth

this result disagree with study conducted by (Hua & El Oualja, 2019) that cancelled 6% of women have before having a CS, and 18% have a VD after having a C\S

Also, this finding disagree with the studies by (Girma et al, 2021) and (Mooney et al, 2019) according to which Following a cesarean section, the achievement rate of VD. Vaginal birth after a cesarean section has a poor success rate. Past cesarean section with macrosomia, prior vaginal delivery following cesarean section, history of vaginal birth, cervical dilatation at admission, and labor length were all linked to this success rate. The elements that increase the chance of a successful vaginal delivery should be prioritized.

In addition, this result correspond with study done by (Kiwani & Al Qahtani, 2018) and study by (Jamshed & et al.,2022). That revealed the Women undertook a labor trial after a single prior CS, with an 83 percent VBAC success rate.).

Physicians should recognize that their vital involvement in the delivery decision-making process and in enhancing women's trust "TOLAC (trial of labor after a cesarean section) may be critical to increasing the rate of TOLAC (trial of labor after a cesarean section). "

The present study also indicated that women with **cesarean section** have **vaginal** delivery history last one 16% and history last one cesarean delivery were 40% .This is consistent with studies collected in Ethiopia, Anatolia, Nigeria, Anatolia, Bahrain and New Zealand that found the Mothers experience spontaneous vaginal birth prior to a previous CS. This might be caused to moms who had a previous CS owing to causes that do

not repeat. Additionally, earlier vaginal delivery is associated with shorter labor and a decreased risk of uterine rupture. (Van et al, 2013 ; Senturk et al, 2015 ; Alani et al, 2017 ; Eleje et al, 2019 ;Mekonnin & Bulto, 2021).

The number for children of women with cesarean section and normal vaginal delivery where high rate those have more than 2 children that agreement with study found high percent for women participant have more than 2 children this result agree with studies conducted by (Sinchitullo et al., 2020) & (Vieira et al., 2015) those showed high percent of participant women had have more than 2 children.

5.3. Family history of mother

Family **history Gestational hypertension** and family history gestational diabetes had higher percent for women in present study with (CS & VD) while these women do not have gestational hypertension this result agree with study by (Jamshed & et al.,2022).

The result Related maternal family history Gestational diabetes. This result disagree with studies by (Nicolosi & et al., 2020) and (Saravanan et al., 2020) those found significant associated influences included a family history of diabetes mellitus and gestational diabetes because the women with chronic disease were excluded from present study.

In addition, A research was done to determine the risk factors for with Gestational hypertension in Nekemte Referral Hospital by (Hinkosa et al., 2020) that found Women, Those with a positive family history of hypertension were more likely to develop gestational hypertension than women with a negative family history, other study including result disagree with current study in Ethiopia by (Hinkosa et al., 2015).

Another study disagree with current result that found significant relationship with family history of cardiac disease and renal disease with presence this disease during pregnancy (Carroll et al., 2017)

5.4. The Personal present obstetric history of mother

Polyhydramnios have with the women with cesarean section in current study 13% but with women have normal vaginal delivery 4% that correspond with study conducted by (Suleiman & Salim, 2017) which reported caesarean labour among women hospitalized with polyhydramnios with and without a trial of labor compared to those with normal amniotic fluid index (AFI) that was discovered the total incidence of Cesarean Delivery was considerably greater in women with polyhydramnios.

This result also, agree with a study Pretend pregnancies Idiopathic polyhydramnios was linked to a greater incidence of cesarean birth (95 percent CI), which increased with severity of the condition. (Luo et al., 2017). Other study done by (Zeino et al., 2017) shown that the cesarean section rate was much greater in women with polyhydramnios than in the general population.

In addition to the research of (Bakhsh & et al. 2021) clarify A statically remarkable link was observed between polyhydramnios and and cesarean delivery rates.

Concern of **Oligohydramnios** for women in current study (7 % for normal vaginal delivery vs 14% for cesarean delivery) these finding dis disagree with study by (Bakhsh & et al.,2021) that revealed

Oligohydramnios was largely linked to vaginal births and study conducted by (Hay, 2020) explained Oligohydramnios is a condition that increases the likelihood of vaginal deliveries.

In other hand these result is similar with studies conducted by (Bhagat & Chawla.,2014; Jagatia & et al.,2013) that found Oligohydramnios has a strong association with cesarean section. This supported the current result

In regard to PROM (premature rapture of membrane) where (cs 8% vs VD 5%) that correspond with result of some studies explained found significant issue for obstetricians and an important cause increased rate of cesarean section delivery. (Ibishi & Isjanovska, 2015), also, study by Hussin *et al.*, 2013 shown that early membrane rupture is in relation with a higher risky of cesarean birth.

Concerning **Umbilical cord prolapse** the result that agree with finding of study by (Ahmed & Hamdy, 2018).

5.5. Type of C\S for of women participant.

According the **type of delivery cesarean section** 25% has **elective** cesarean section and 75% **emergency** cesarean section these finding agree with a prospective observational study carried out by (Thakur et al., 2015) which found Elective and emergency caesarean sections were performed at a rate of 21.63 percent and 78.37 percent, respectively. Forever, these result similar finding of comparative cross-sectional prospective studies (Benzouina et al., 2016); (Darnal & Dangal, 2020).

In addition this finding disagree with study by (Batieha *et al.*, 2017 ; Wang, 2016 ; Aljohani *et al.*, 2021; Roldán, 2020).

5.6. Indications of CS for of women participant.

Failure to progress of labor was high percent 56% followed by **Repeated CS** 36%, **Breech presentation** was 4%, and each of **uterine fibroid and umbilical cord prolapse** were 2%

The women with history of **Repeated CS constituted the higher rate of CS, Failure to progress of labor and abnormal presentation.**

That findings of agreement with study conducted by (Fadhl *et al.*, 2021), . However, study in Iran by (Rezaie *et al.*, 2014) those showed the Repeated C-section and breech presentation were high percent.

The present study showed the **Uterine fibroid during pregnancy** were Indication of emergency of c\s in percent 2% this result agreement with cross-sectional studying done by (Eleje & et al., 2019). that revealed the incidence for fibroid in pregnancy and Cesarean delivery were adverse outcomes recorded also, retrospective cross-sectional study in mainland China by (Zhao et al .,2017) showed same finding the Uterine fibroids were shown to be strongly linked with cesarean delivery. Typically, the incision is done to avoid uterine myomas, and the myomas are enucleated after fetal delivery.

The umbilical cord prolapse induced cesarean delivery , which was consistent with a retrospective cohort study using data from the "National Center for Health Statistics-Linked Birth Infant Death and Fetal Death (US) " that discovered UCP was in relation with an high risky of Caesarean section deliveries (Behbehani et al, 2016). Another study by (Al-Obaidly et al., 2019) agreement with current study.

Also, agree Results of study was conducted with Pregnant who had UCP were assessed in terms of prenatal care, which demonstrated the UCP risk factor for emergent cesarean delivery . (SİMSEK, *et al*, 2021)

5.7. Normal vaginal delivery with and without episiotomy

The finding of current study shows that women with normal vaginal labor with **episiotomy** were 74% and without use episiotomy were 26% this finding is **agreement with** results of cross-sectional study was conducted by (Tefera *et al.*, 2019 ; Karaçam *et al.*, 2013 ; Pebalo, 2019) how showed The prevalence of episiotomy more than VD without episiotomy of women participant in that study while, the current result were disagreement with

result of cross sectional study was conducted by (Woretaw *et al.*, 2021) ; Adama *et al.*, 2018) which found The prevalence of VD without episiotomy more than VD with episiotomy

The disparity might be attributed to differing research population characteristics. Furthermore, the hospital is the sole referral hospital in the area, thus complex cases are transferred there, and most primiparas opt to give birth there for better treatment

5.8. Prevalence of Complications during and after normal vaginal delivery vs cesarean section

The finding of current study reveal that the complications during and after cesarean section more than complications during and after normal vaginal delivery of women that participant in study

That result of **similar** study computable with the current result the study by (Asghar *et al.*, 2022) where he found the result revealed that Mothers While compared to VD, the risks of encountering a complication were thrice greater when delivering by CS.

This result **agreement** with study conducted by (Sharma& Dhakal., 2018 ;Wang *et al.*, 2096) which showed him Total problems occurred 2.2 times more often in the caesarean section group than in the vaginal birth group.

Also, this result is **supported** by a study done Jordan by Batieha *et al.*, (2017), and Iran by (Rafiei, *et al.*, 2018; Thailand by Kongwattanakul *et al.*, 2020) these showed significantly increased risk of cesarean delivery maternal outcomes complications compared with women who delivered normal vaginal.

On the other hand, this finding contradicts a research done at the "department of Obstetrics and Gynecology at Dhaka Medical College &

Hospital DMCH", which found that the cesarean section group had a superior fetomaternal outcome than the vaginal birth group.

5.9. Complications during and after the normal vaginal delivery.

In present study **The Infection of Episiotomy** Complications was for the highest percentage of mothers Followed by **Puerperal Infection** , **Severe anemia** , **Episiotomy dehiscence (wound separation)**, and, and **immediate postpartum hemorrhage** .

Regarding The Infection Episiotomy that correspond with the percent of A cross sectional study by (Khan *et al.*, 2020) and study by (Abebaw *et al.*, 2020) which found very close ratio of current result.

On other hand, **Puerperal Infection** was which is agree with percent of study conducted in Pumwani Maternity Hospital while, this result disagreement with study by (Asghar *et al.*, 2022 ; Venkatesh *et al.*, 2019) ; Khaskheli *et al.*, 2013) .however About **postpartum anemia** the percent of the current study which **incompatible** with finding of study collected by (Tairo & Munyogwa, 2022 ; Fanta, 2020; Bhagwan *et al.*, 2016) where showed that The proportion of postpartum anemia more than the current result.

This variance might be attributed to the exclusion of women with blood diseases from this research, as well as a difference in postpartum screening time. Also, there is a variation in the quantity of samples and the type of the study.

Regarding the **Episiotomy dehiscence (wound separation)** which was agreement with percent of study that found proportion of women with tearing perineum after delivery (Smith *et al.*, 2013).also. This result is agreement with studies by (Jansson & *et al.*, 2020) that found women with normal labor have first-degree Perennial laceration

Related immediate postpartum hemorrhage was compatible with A study conducted by Thepampan *et al.*, 2021 and study by (López-García *et al.*, 2017) those how found very close percent of immediate postpartum hemorrhage .

However, more of study done by (Ononge *et al.*, 2016 and Sikder ; *et al.*, 2014) have result disagree with the present study that Women who delivered vaginal births.

5.10. Complications during and after CS

Regarding result of **Hemorrhage** during CS agreement with study by (Mengesha *et al.*, 2019) showed excessive blood loss and blood transfusion but the result of present study agreement with studies by (Du *et al.*, 2021; Aljohani *et al.*, 2021).

Regarding **hysterectomy and Bladder injury** that agreement with finding of study by (Sandall *et al.*, 2018) which found the Organ injury occurred in that of women undergoing benign CS. The present result was agreement other study done by (Gică *et al.*, 2022) that found the overall incidence of EPH (Emergency peripartum hysterectomy) was 0.99 per 1000 births. It is also crucial to note that peripartum hysterectomy is related with significant maternal morbidity and severe difficulties with CS.

Also, the result of present study regarding **Emergency peripartum hysterectomy** consisted with the study conducted by (Van Den Akker *et al.*, 2016).

related of rupture uterine **during** cesarean labor this result no correspond to stud done by (Addisu *et al.*,2020 ; Egbe *et al.*, 2016 ;Shick, S& Neiger, 2015 ; Handady *et al.*, 2015 and Mengistie *et al.*,2016) .

Also, this result agreement with findings of studies by (Osemwenkha & Osaikhuwuomwan, 2016; Shick, & Neiger, 2015). Who showed

prevalence uterine rupture during cesarean section 9.5%, 7% and 23% respectively?

Regarding the result of present study associated with **complications after cesarean section, post-partum anemia** result was compatible with findings of disagreement with studying done by (Sivahikyako *et al.*, 2020). While studies done by (Abebaw *et al.*, 2020, and Obai *et al.*, 2016), those reveals the result close of the current finding related the proportion of immediate postpartum anemia.

Variations in postpartum anemia prevalence are attributable to differences in sample size, timing of testing hemoglobin concentration, or failure to study hemoglobin for postpartum women before hospital release in order to detect and treat anemia immediately.

According to **Wound of surgical infection**, this result correspond to more studies done by (Gomaa *et al.*, 2021; study by Azeze & Bizunehn, 2019), study done by (Gelaw *et al.*, 2017), and study by (Mengesha *et al.*, 2019) revealed the prevalence of surgical site infection following cesarean section.

On the other hand, some of studies revealed proportion agreement with the present result which including a studies were conducted by (Jasim *et al.*, 2017) and study by (Shrestha *et al.*, 2014), but the present study disagree with study done by (Abdel Jalil *et al.*, 2017).

Despite adequate antibiotic therapy, surgical site infection was prevalent. This might be attributed to patient, surgeon, and environmental variables.

Regarding the **constipation after cesarean birth**, this result diagreeement with study by (Kuronen *et al.*, 2021).

Related to The complication **urinary tract infection after cesarean** that agree with (Gundersen *et al.*, 2018) how found compared to women

who had planned CS, there was an increased risk of postpartum urinary tract infection, also the current result agree with (Hung *et al.*, 2016) which When compared to VD, the CS was linked with a considerably greater incidence of UTI.

In regarding **early post-partum Hemorrhage**, that supported by finding of study done by (Fawcus, & Moodley, 2013) which has the rate of caesarean sections ranges from 1–4 per 1000, which is much higher than the frequency of vaginal birth. While it is a life-saving procedure, it is associated with significant morbidity, including substantial blood transfusions and critical care (10–48%), urological injury (8%) and the need for relook laparotomy (8–18%).

There are many studies that have ratio disagreement with ratio of present finding, study by (Kawakita *et al.*, 2019). But, the studies done by (Ononge *et al.*, 2016) and (Calvert *et al.*, 2012) were revealed the incidence of early postpartum hemorrhage following CS, those supported present result

In addition, tie current finding dis agreement with the result some studies, including study done by (Kebede *et al.*, 2019), study done by (Tasneem *et al.*, 2017) and study done by (Halle-Ekane *et al.*, 2016) , (Kallianidis *et al.*,2020) and research done by (Liu & *et al.*, 2020) .

While, study done by Nakagawa et al, (2016) have similar percent of PPH after cesarean section 13%,

Concerning to the **Puerperal sepsis** that result agreement with (Ngonzi *et al.*, 2018; Ahmed & Alsammani, 2013; Souza *et al.*, 2016) . who found percent of Puerperal sepsis of women participants in these studies similar finding with the present study 2% with cesarean birth .but study by (Demisse *et al.*, 2019) Contrary to the present findings, it was demonstrated that women who had a cesarean section (CS) were 3.8 times

more likely to have puerperal sepsis than those who had a spontaneous vaginal birth. Caesarean sections have been associated with a higher risk of adverse maternal outcomes.

Caesarean sections should only be conducted when a demonstrable benefit is expected, a benefit that might offset the greater expenses and dangers associated with this procedure.

5.11. Anesthesia type and Complications during and after cesarean section

Concerning type **anesthesia** where as it showed that **Spinal blockade** was the anesthesia type for 77% of the mothers, **General anesthesia** for 23% this correspond to (Wiskott *et al.*, 2020).

(Iddrisu & Khan., 2021) reported as indicated by superior fetal and maternal outcomes, regional anesthetic appears as a preferable alternative. For cesarean deliveries, however, both regional and general anaesthetic are still utilized.

This finding disagreement with studying conducted by (Abdissa *et al.*, 2013).

The high rate of present study concerning Spinal blockade as type of anesthesia agreement to studies (Idris *et al.*, 2020) showed In Eritrean moms, the total satisfaction percentage with spinal anesthesia services for caesarean section was 87.9 percent, in Ethiopian 62% (Belay, 2015), Kenyan studies 85% (Senghor & Morema, 2017).

Regarding complication **during and after anesthesia**, it found have complications related anesthesia, this is high compared to study was conducted by (Tesfaye *et al.*, 2017) that revealed the overall maternal complication rate was 30.1%, This variance might be owing to the type of obstetric emergencies, such as unintentional internal organ injury and blood transfusion, as well as the services offered for the majority of referred

patients or complex births, which result in a high rate of maternal complications.

5.11.a Maternal Complications related general anesthesia

Davarinia *et al.*, 2013 in Iran found the rate of **Larynx pain, sore throat**, after surgery is higher after general anesthesia than spinal anesthesia. That compatible with current study. Also, (Gemechu *et al.*, 2017) conducted study how explain the prevalence of postoperative sore throat within 48 hours after operation was 59.6%.

In the recent study, it was the rate of **Post-operative Nausea & Vomiting** inconsistence with the study by (Voigt *et al.*, 2013), were Postoperative events of nausea and vomiting were low but other study by (Semiz *et al.*, 2017) how found The number of patients with nausea/vomiting was (28.2%) which the percent more than the percent of current study.

Regarding **constipation** have this result agree with result of study done by (Tilahun & Gudina, 2021) and study done by (Alegbeleye, 2018).

5.11.b. Mother's complications according to spinal anesthesia

The result related **Post spinal Back Pain** this agreement with finding of studies by (Zelege *et al.*, 2021; Lee & Heo, 2019; Forozeshfard *et al.*, 2020 and study by (Duits *et al.*, 2016).

Back pain is prevalent among the general population. Back discomfort is significantly associated with the body mass index, the size of the spinal needle, the number of attempts, and the number of bone contacts during spinal anesthesia. As a result, it is recommended to restrict lumbar puncture attempts and bone contacts while under spinal anesthetic to avoid post-spinal back discomfort. Additionally, it is prudent to use a spinal needle with a smaller diameter.

In regard **headache this** related spinal anesthesia, this result agreement with studies conducted by (Syed *et al.*, 2017; Jabbari *et al.*, 2013).

Regarding **postpartum Constipation** after spinal anesthesia which is agreement with the studies by (Kuronen, 2021) how those found Constipation was most prevalent in the first few days following delivery; a few days after a caesarean section. however this result disagree with the study (Yoshida *et al.*, 2018).

Concerning the **hypotension** during spinal anesthesia the result correspond with study by (Šklebar & *et al.*, 2019) that reported the Spinal block leads to vasodilatation and consequently causes maternal hypotension, also, study done by (Nigussie, 2016) which correspond with the present result, who showed During cesarean section, hypotension occurs between five and fifteen minutes and between fifteen and twenty-five minutes. Other study support current result, a study conducted by (Shitemaw *et al.*, 2020) where ladies who had a cesarean section while under spinal anesthesia suffered hypotension.

Inexperience, a lack of understanding, poor treatment, and poor patient circumstances were all important contributing causes. The majority of them could have been avoided or corrected.

5.12. Association between presences of Complications during both mode of delivery (VD & SC) with maternal demographical data.

In Concern the significant Relationship between presences of Complications during (VD & CS) with **maternal Age** ($p=0.049$) (0.000^{**}) respectively. this result agree with study by Vandekerckhove *et al.*, (2021), that reported The risk of maternal-fetal problems grows significantly with maternal age during pregnancy and is especially high beyond 35 years, other study agreement with present result, by (Frederiksen *et al.*, 2018) which revealed Several factors raise the chance of a negative pregnancy outcome, but **maternal age** accounts for a large amount of the total risk score. Also, study conducted by (Sinchitullo Castillo *et al.*, 2020) that

showed the Women who were older were at a higher risk for problems during cesarean birth. In addition studies done by (Aoyama *et al.*, 2019; (Molina-García *et al.*, 2019) those reported increasing maternal age was an independent characteristic associated with severe maternal complications during birth (CS & VD) which **supported the present finding**.

Maternal problems were more common in younger women who had undeveloped reproductive health systems and older women who had impaired reproductive organs.

Regarding other that variables, there is no significant relationship with the other demographic variables **maternal Educational level** ($p=0.395$) with complication during VD & CS this finding was correspond with studying conducted by (Zandkarimi, & *et al.*, 2021) how revealed that the women with high education level, associated with high rat of maternal complications during NVD and CS but this current result disagree with studies by (Liu *et al.*, 2022; McAlister & Baskett, 2016) who reported Low levels of mother education were associated with high rat of maternal complications during VD and CS even amongst women able to access facilities providing intrapartum care.

Also, The results were in disagreement with a study done in Tharaka which showed that mother with educational level were significant relation with complications during VD & CS (Gitonga, 2016). That deference may be to the number of samples or the geographical dispersion . Also, study conducted by (Zandkarimi *et al.*, 2021) How demonstrated that women with a high level of education, women who accessed at least one kind of media (e.g., radio, television, etc.).

no significant relationship between the maternal **Occupation** with complications duringm **VD** while found significant relation related complication during cesarean section, this finding is not computable to the study of (Misiko, 2020) Who revealed the results that Sociodemographic

influences such as maternal age (p 0.002), occupational (p 0.001) were related with maternal problems in a remarkable During NVD and computable with result of cesarean complications. The results were in agreement with a studies done by Srijana & Supendra, 2014. Which showed that occupation maternal complications in pregnant women and during birth and studying done by (Zandkarimi *et al.*, 2021).

As for that no significant relationship between the maternal **residency** and complications during VD and have significant relationship with complication during CS, this finding non computable with the study done by (Azuh *et al.*, 2017) which report a rural community setting may reduce maternal complication during VD and CS. but this result computable with present result regarding CS. In addition other study done by (Nigussie *et al.*, 2014). Which non accordant with result during VD while similar to finding associated with CS that reported the place of resident has high significant relationship with complication during CS .

Resident participation positively affect outcomes in mother with cesarean deliveries. Mothers who reside in cities are aware of the hazards associated with cesarean birth, and counseling sessions are being established to alleviate mothers' dread of vaginal delivery.

With respect to **pre pregnancy BMI** that was not have significant relationship with Complications during VD and with Complications during CS, the finding of study done by (Wei *et al.*, 2016) how found the Pre-pregnancy overweight or obesity is in relation with high risk of complication during birth (VD & CS) which disagreement with the finding of VD and with the result of CS. Also study conducted by (Ding *et al.*, 2016) where revealed Women with a pre-pregnancy BMI greater than the normal range are at an increased risk of unfavorable consequence during VD and CS, which contradicts the findings about VD and CS.

There was a correlation between residing location and CS choices, with women living in cities being more likely to pick CS, because Despite the fact that CS has several risks and is not often suggested by obstetricians and midwives, various circumstances influence the decision to use this mode of delivery. Aside from this typical occurrence, various socioeconomic and demographic cleavages exist in urban vs rural regions. The disparities in CS correlates based on where women live imply that particular steps should be made in each environment to ensure that women have access to birthing services that are appropriate for their requirements.

Also, study by (Lisonkova *et al.*, 2017) who reported the pre pregnancy BMI has significant relationship with severe maternal complications during CS & VD that disagreement to finding regarding VD &CS.

In other hand, regarding BMI of pregnancy at term that was not have significant relationship with Complications during VD but have high significant with Complications during CS.

the study done by (Çalik *et al.*, 2018) who reported During pregnant body mass index and gestational weight rise elevated the chances of cesarean section and postpartum problems Concerning BMI at term, it was shown to have a substantial link with complications during CS but not with complications during VD, a finding that contradicted the results of VD but agreed with the result of CS.

In addition a study by (Melchor *et al.*, 2018) was found maternal obesity at delivery is in relation with a increase risk of adverse pregnancy and delivery complications which inconsistence with finding related VD and consistence with that result related CS .

And also study done by (Dalbye *et al.*, 2021) that showed found significant relationship between BMI at delivery obese increased risks of obstetric

interventions and maternal complications during birth, and these result agree with result related CS and disagree with result related VD so, The Women who were overweight before pregnancy may still be at risk if they gained weight during pregnancy, and these women should be informed about the dangers associated with increasing maternal weight during pregnancy..

5.13. Association between presences of Complications after both mode of delivery (VD & CS) with maternal demographical variabeles.

In regarding the maternal age the study conducted by (Aboneaaj, 2015) which found the finding show that increased maternal age is associated with a number of unfavorable birth outcomes., study done by (Asefa & Ayele, 2020) those found which indicates that there is a significant difference between adverse delivery outcomes among Advanced maternal age, as reported by (Laopaiboon *et al.*, 2014), substantially increased the probability of maternal unfavorable outcomes after delivery (VD, CS). These investigations confirm the current study's conclusion for VD but not for CS.

Concerning pre pregnancy BMI with VD & CS this result consistence to study by (Rahmani *et al.*, 2016) who reported significant There is a correlation between pre-pregnancy BMI and pregnancy weight increase, as well as neonatal problems following delivery.other study done by (Liu *et al.*, 2016) showed Pregnancy weight gain is connected with an increased risk of maternal and neonatal problems after delivery. Study done by (Mochhoury *et al.*, 2013) which found existence overweight or obesity pre pregnant woman was in relation with an increased risk complication after birth, these findings disagreement with present result related VD and agree with result of CS

Regarding BMI at birth and relation with complication after NVD& CS, the study by (Marchi *et al.*, 2015) who found relationship between BMI at birth and complications outcomes after delivery (VD, CS) also study by (Rahmani *et al.*, 2016) who reported significant relationship between BMI pre Pregnancy and weight gain throughout pregnancy have an effect on postpartum maternal and newborn problems.. These result agree with present result of CS but disagree with VD.

Therefore, the mother must control of body weight before and during the period of pregnancy is recommended to decrease adverse pregnancy outcomes,

With respect to, other variables educational level, Residence and occupation.

The present result Study not compatible with the present study done by (Kern-Goldberger *et al.*, 2020) which found Maternal cesarean complications were observed to be more prevalent in women with just elementary and high school, education, compared to women with a college degree, education.

In another study in Kitui County in Kenya, it was also shown that women with higher education associated with reduced maternal complications after birth (Nzioki *et al.*, 2015). Also, study by (Casas *et al.*, 2015) who found Working mothers were not linked to poor birth outcomes in the majority of the occupations investigated, which supports the current finding.

The results were in correspond with a study done by (Mukhwana, *et al.*, 2021) which showed that maternal occupation relationship with maternal complications after birth (VD& CS).

In regard maternal Residency this result correspond to studies done by (Valentin, 2016) and study by (Khan & et al.,2022) who found high rate

of maternal/neonate morbidity and mortality (complications outcomes after birth) in an urban area that meaning found relationship between mothers' residency and complications after birth were this disagree with present stud, study by (Lisonkova *et al.*, 2016) reported Women in rural regions exhibited higher rates of severe maternal morbidity and severe newborn morbidity than women in urban areas.

5.14. Association between presences of Complications during both mode of delivery (VD & CS) with maternal reproductive characteristics

Concerning the result of study according Relationship between presences of Complications during both mode of delivery (VD & CS) with maternal demographical, this finding agreement with result of study (Kirchengast, 2016) which found age at marriage is an independent predictor of caesarean delivery. Also studies done by (Rydahl *et al.*, 2019); Al Rowaily *et al.*, 2014; Tilahun *et al.*, 2021) those revealed the pregnant multi gravida and multi para and gestational age was found to be a major predictor of unfavorable mother outcomes.

Study conducted by (Liang *et al.*,2018) disagreement with the present study that found There was no discernible variation in preference across reproductive factors such as parity, gravidity, trimester and abortion history. Also research by (Pandit *et al.*, 2022) agreement with present finding concerning **concern gravidity and infertility.**

In other hand study the current finding consistence with studies conducted by (Ye & *et al.*, 2019; Kessous & *et al.*, 2013) relating Interval between last pregnancies.

5.15. Association between presences of Complications after both mode of delivery (VD & CS) with maternal reproductive characteristics

Regarding the result of study according Relationship between presences of Complications after both mode of delivery (VD & CS) with maternal demographical, this finding agreement, these result coincided with result of studies conducted by (Gutema *et al.*, 2014; Abdurke Kure *et al.*, 2021; Tesfaye, *et al.*, 2021) regarding relation CS outcomes with women multi gravida, multi para and gestational age

Studies by (Huang *et al.*, 2013; Azene& Aragaw, 2020). Have result disagree with the current finding

5.16. The Demographics Variables related newborn

Concerning neoborbn weight at birth this result agree with study conductefd in in Jordan by (Khasawneh *et al.*, 2020) which showed the newborn weight at birth cesarean section ($\geq 2500\text{g}$) were (77%), wherever study by (Shamsa *et al.*, 2013) who found the percent of newborn weight(2500 – 4000) with NVD (77%) this agree with present study and percent of newborn weight <2500 with CS (54%) that disagree with present study, and this study showed percent 1% neonate dying with CS that agree with present study .

According item **gestational age** have high percent gestational age at Term (37-41), this result correspond with study conducted by Thailand by (Kongwattanakul, 2021) that found high percent of gestational age (Term (37-41) of women.

In other hand study done by (Obsa *et al.*, 2020) who reportd the percent of newborn male was 54% and neonate weight ($\geq 2500\text{g}$) was 78% this agreement with the current study.

5.17. The neonatal complications according mode of delivery

Concerning newborn weight at birth this result agreement with study conducted in Jordan by (Khasawneh *et al.*, 2020) which showed the newborn weight at birth cesarean section ($\geq 2500\text{g}$) were (77%), wherever study by Shamsa *et al.*, 2013) who found the percent of newborn weight (2500 – 4000) with NVD (77%) this agree with present study and percent of newborn weight <2500 with CS (54%) that disagree with present study, and this study showed percent 1% neonate dying with CS that agree with present study .

In other hand study done by (Obsa *et al.*, 2020) who reported the percent of newborn male was 54% and neonate weight ($\geq 2500\text{g}$) was 78% this agreement with the current study

5.18. Neonatal complications during and after VD & CS

The Complications during VD was Cephalohematoma or caput succedaneum, this result was disagree with the result by studies (Wang *et al.*, 2019; Abedzadeh-Kalahroudi *et al.*, 2017) which showed the percent of Cephalohematoma or caput succedaneum during NVD (18%), (37.03%) and (57.2%) respectively

While study conducted by (McKee Garrett, 2013) showed the risk of cephalohematoma is about 1% to 2% per delivery which support the present study.

The distribution of newborn complications related VD delivery as it showed the fifth min. APGAR <7 was (5%), fetal jaundice was (4%). Followed by fifth min. APGAR <7 and Hypoglycemia have same rate 2% and for neonatal sepsis of the Newborns have 1%.

While, Table (18) the distribution of newborn Complications **after** CS, as it showed the fetal first min. APGAR ≤ 7 was for Most Newborns

24% then Hypoglycemia in the rate of 13%. Followed by fetal **jaundice** in the rate of 12%, fifth min. APGAR <7 with fetal sepsis in the rate of 5% and neonatal death after cesarean section were 2%.

The result of study by (Rahmanian et al., 2014) who revealed the percent of fifth min. APGAR <7 was (4%) after VD and (2%) after CS. This disagrees with the present study, also study by Fajar et al (2017) found the percent of first min. APGAR ≤ 7 with VD (28%) and (7.8%) with CS, related fifth min. APGAR <7 the percent was (32%) with VD and (1%) with CS these results were more than percent related VD in current study and less than percent related CS the definitions of percent related to fetal presentation

In addition, A cross-sectional design study conducted in Nepal by (Paudyal, 2020) who revealed the rate of 1st minute APGARE score on normal vaginal delivery less than 7 was 11% this and with CS was 13%, while the rate of 5th minutes APGARE score on normal vaginal delivery less than 7 was 6% and with CS (4%), the result related VD was more than current result of present study and the result with CS was more than the present study. Additionally, a recent research indicated that although the technique of delivery had no influence on the low Apgar score of newborns, characteristics such as preterm, maternal age, mother's weight, parity, and low birth weight all have a significant connection with the low Apgar score of newborns.

Other study by (Obsa et al., 2020) to assessing the Apgar score among newborns delivered by cesarean sections who showed the 1st minute APGARE score on CS less than 7 was 30.2% while 5th minutes APGARE score on CS less than 7 was 12% this result closer data with present study

(Abdissa et al., 2013) show which found result more than the present study was 62.5% of 5th minutes APGARE score on CS less than 7.

In regard jaundice after birth the result of current study was less than the study by (Farhat et al., 2016) Clinical hyperbilirubinemia (bilirubin greater than 5 mg/dl) occurred in 72.2 percent of neonates born with VD and 74.1 percent of neonates delivered via CS, other study disagree with present result that studies by (Lee & Choi, 2019; Boskabadi & et al., 2014; Saber et al., 20123; Baş et al., 2020) which reported that, After a vaginal birth, the rate of newborn jaundice is higher than after a cesarean surgery. Concerning problems of neonatal Hypoglycemia after birth was (VD 2% & CS 13%) this result dis agree with research done by (Mitchell & et al., 2020) which report that the vaginal birth do not associated with hypoglycemia after birth

Regarding neonatal sepsis after birth the present result agreement with study by (Siakwa et al., 2014) was revealed incidence of neonatal sepsis after NVD less than incidence of neonatal sepsis CS, other study not correspond with current result that conducted by (Jabiri, et al., 2016) were showed the rate of neonatal sepsis after (VD 34% & CS 27%) .

The death neonatal after CS was 1% this inconsistence with studies by (Gedefaw et al., 2020), study by (Prado et al., 2018) which revealed that the common neonatal complications after CS early neonatal death

Also, Júnior et al (2014) found significant negative association between caesareans and newborn death which different with present study, which found 1%.

5.19. The associasion between presences Newborn Complications during & after both mode of delivery and maternal demographical variable.

This result regard maternal age agree with study by Vandekerckhove et al (2021) who report the neonatal complications during birth associated with with after 30 years, maternal age. The findings

corroborate those of prior research. (Frederiksen et al., 2018) very high precision and in a different demographic, which bolsters their validity.

Although, present result disagree with studies by (Adewuyi *et al.*, 2016; Samuel & Amoo, 2014; Fasina & Gbolahan, 2017) Thoes found relationship between maternal demographical data and neonatal complication during NVD. But agree in regard maternal age.

Related finding maternal BMI at birth, another study conducted by (Liu *et al.*, 2016) who clarified the pre-pregnancy BMI is associated with adverse neonatal outcomes (CS & VD). Which disagreement to present study.

In regarding BMI at birth the current result disagree with study conducted by (Ata & Şahin, 2015) which conclude that control of weight gain during pregnancy is important outcomes for prenatal and neonatal outcomes. Other study disagree with present study that conducted by (Yeşilçiçek *et al.*, 2018) who revealed Increased mass index and prenatal weight growth increased cesarean section rates and birth difficulties.

This finding that disagree with (Fasina, 2020) they discovered that women's demographic characteristics such as age, area, residency, education, and financial status all had a substantial correlation with newborn complications after delivery. (VD, CS) ($P < 0.05$) but it correspond to maternal age related maternal age with VD

Related to the relation between maternal age and neonatal complications the current result compatible with study by (Blomberg *et al.*, 2014) who showed Teenagers did not have a greater risk of unfavorable neonatal outcomes, but did have an increased risk of prematurity 32 weeks (aOR 1.66 (1.10 to 2.51) and 1.20 (1.04 to 1.38) respectively). Women over the age of 30 years exhibited a considerably higher risk. Additionally,

according to (Mais, 2015), advanced maternal age is a risk factor for a range of unfavorable pregnancy outcomes.

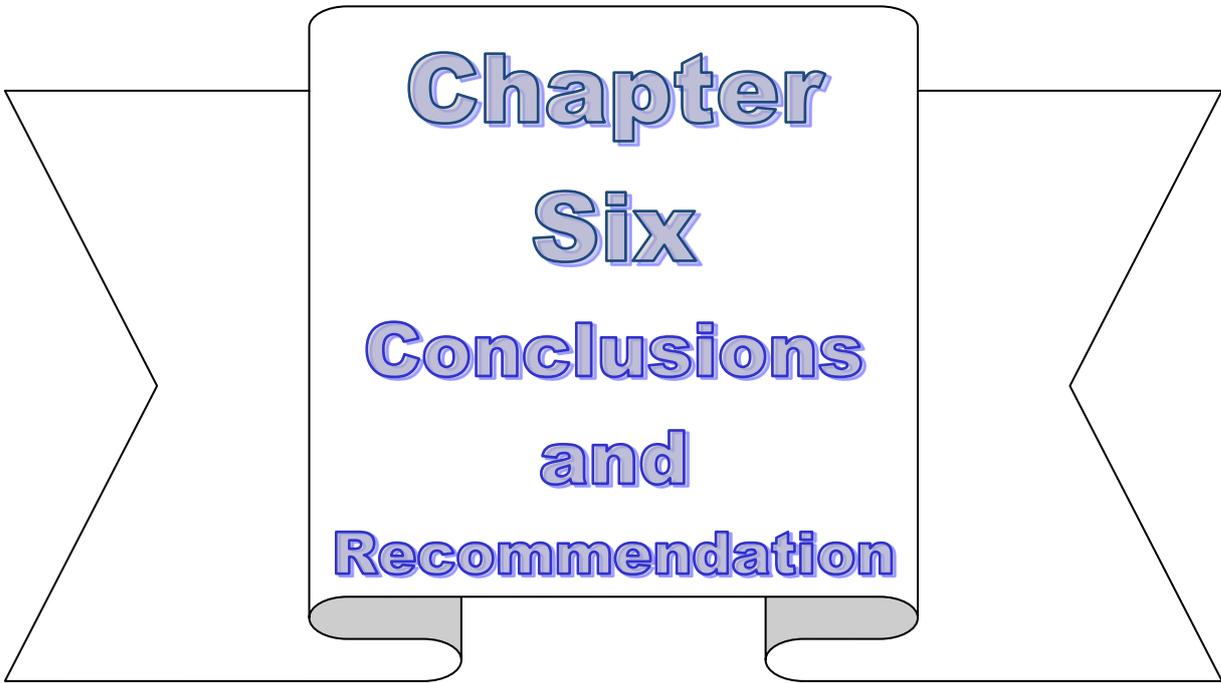
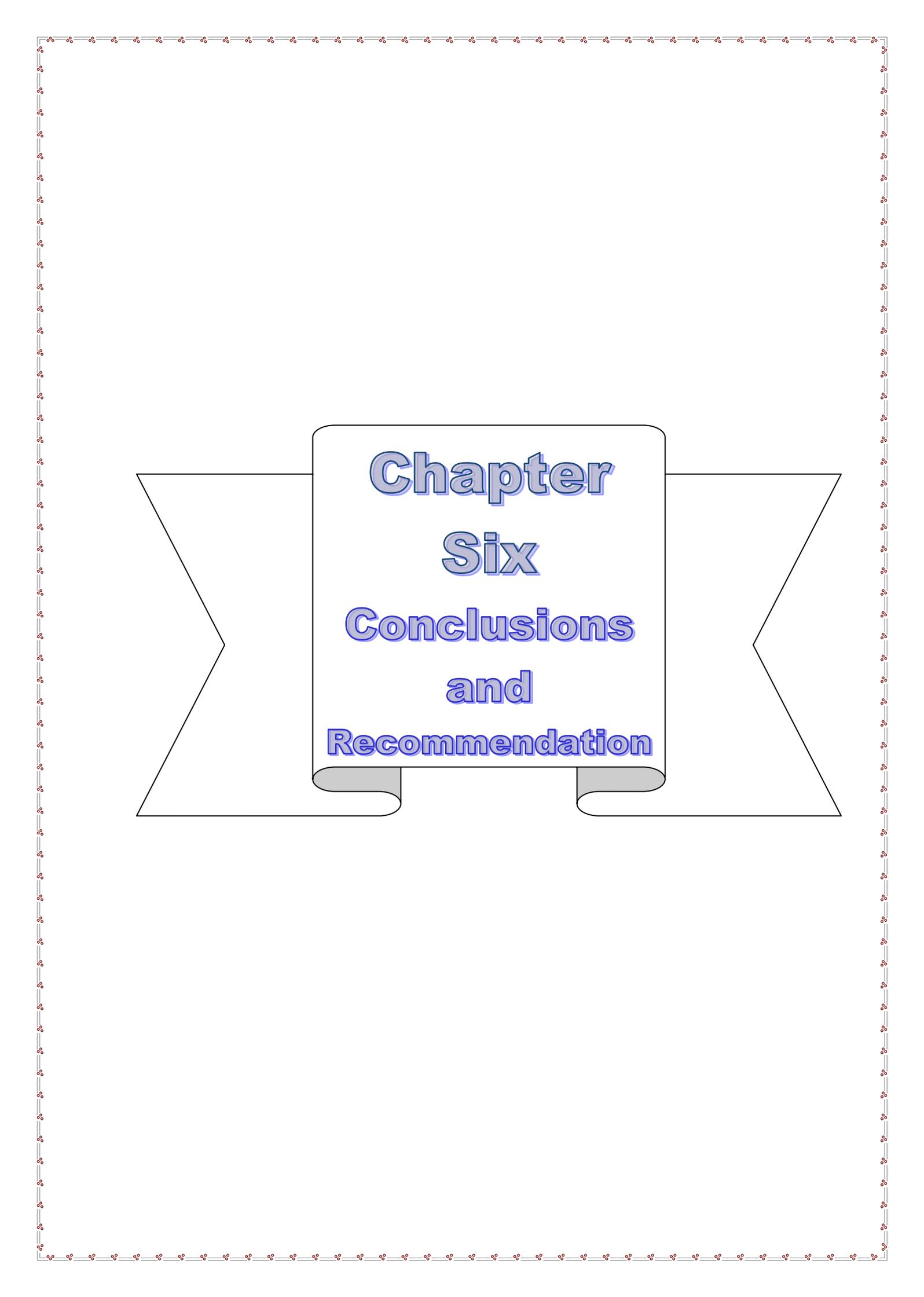
In addition study done by (Sun *et al.*, 2020) which showed the pre pregnancy BMI and maternal age and maternal education was significant relationship with neonatal complications outcomes after birth (CS & VD) that disagree with the present result except maternal age correspond to present study. Other results confirm that obesity during pregnancy can lead to adverse outcomes of neonate after birth (CS & VD), Vernini *et al.*, (2016), Increased gestational weight gain Cesarean section and interventionist delivery rates rose, as were newborn admissions to neonatal critical care units.. (Yeşilçiçek *et al.*, 2019) these studies disagree with the present studying but research conducted by (Dalbye *et al.*, 2021) bolster the findings of a recent research there was no correlation between maternal BMI and neonatal outcomes

5.20. The association between newborn complications outcomes during & after both mode of delivery and maternal reproductive variables.

Interval between pregnancies have association with neonatal complications outcomes were agree with study by (Abozeid *et al.*, 2021) and study by (Kisuule, 2017).

Regarding other maternal reproductive variable during and after normal labour those have no association with neonatal complications this finding this result disagree with study by (Mgaya *et al.*, 2013; study by Afaya *et al.*, 2021; study done by Obsa *et al.*, 2020)

After cesarean section the parity associated with complication of neonate this result agree with study by (Khasawneh *et al.*, 2020; Yusef, & Alsulaiman, 2019). And disagree with result related others maternal reproductive variables.



**Chapter
Six
Conclusions
and
Recommendation**

6.1. Conclusions

1-According to the study findings, the study concluded the following:- The women have normal vaginal delivery have high percent in age group (20 – 29 years) , Illiterate in Educational level , Urban in residency , house wife in occupation and regarding body mass index most of women with normal vaginal delivery body mass index ≤ 25 pre pregnancy and most of them have body mass index ≤ 25 in after delivery.

2-Women with their Personal present obstetric history noticed high percent normal vaginal delivery with cesarean section have Oligohydramnios

3-in the part of cesarean section three-quarters of participants with CS were emergency and the remaining quarter of them were Elective , the Failure to progress of delivery of were high percentage of women have emergency cesarean section in emergency cases .

4-More than half of participant woman have VD with episiotomy.

5- About three-quarters of the CS were emergency and the remaining quarter were Elective. While, women have Spinal blockade more than those woman have General anesthesia, and more than half women participant in this study have Complications related to the anesthesia.

6- Complications related to general anesthesia, Sore throat with larynx pain occurred in the highest proportion of mothers, folwwed by nausea& Vomiting was and constipation.and Complications related to spinal anesthesia werepost spinal back pain, headache, Constipation and and hypotension.

7-Complication during and after CS were more than complications during and after VD

8-High percent of the complications **during VD** Excessive bleeding and **after VD** was Infection of Episiotomy while high percentage of complications **during CS** was Hemorrhage and after CS was Severe Anemia (hemoglobin level < 7 g/dl).

There is significant relationship between presence complications during and after VD and maternal age but no relationship with other demographical variables

There is high significant relationship between presences of Complications during CS and maternal age, BMI at delivery, Residence and Occupation .While have no significant relationship with Educational level, and pre pregnancy BMI. Therefore, high significant Relationship between presences of Complications after CS and pre pregnancy BMI and BMI at delivery while significant relationship with maternal age but no relation with other reproductive variables.

9-Regarding reproductive variables there is high association between mother complcations during VD and interval between pregnancies, but noassociation with other reproductive variables and no association between mother complcations during CS and all reproductive variables.

10- Mothers complications after VD have high relation with maternal infertility and abortion but no association with others variables.regarding mother complcations after CS have high relation with interval between pregnancies but no relation with others variables

11-In sample according characteristics of newborn was more than half of women with VD &CS of baby Wight ≥ 2500 g, male while all newborn with VD are alive and newborn with CS are **98 percent live** and **2percent death** .

12-Complication of newborn **during VD** was (Cephalohematoma) and high percent of complications for newborn **after VD** was **fetal jaundice and not found complications during CS** and complications of newborn after CS was **more than VD**. There was high percent for **first min. APGAR <7**

13-There is high Relationship between presences of **Newborn complications during** and after VD with maternal age, but no have relationship with other maternal demographical variables.

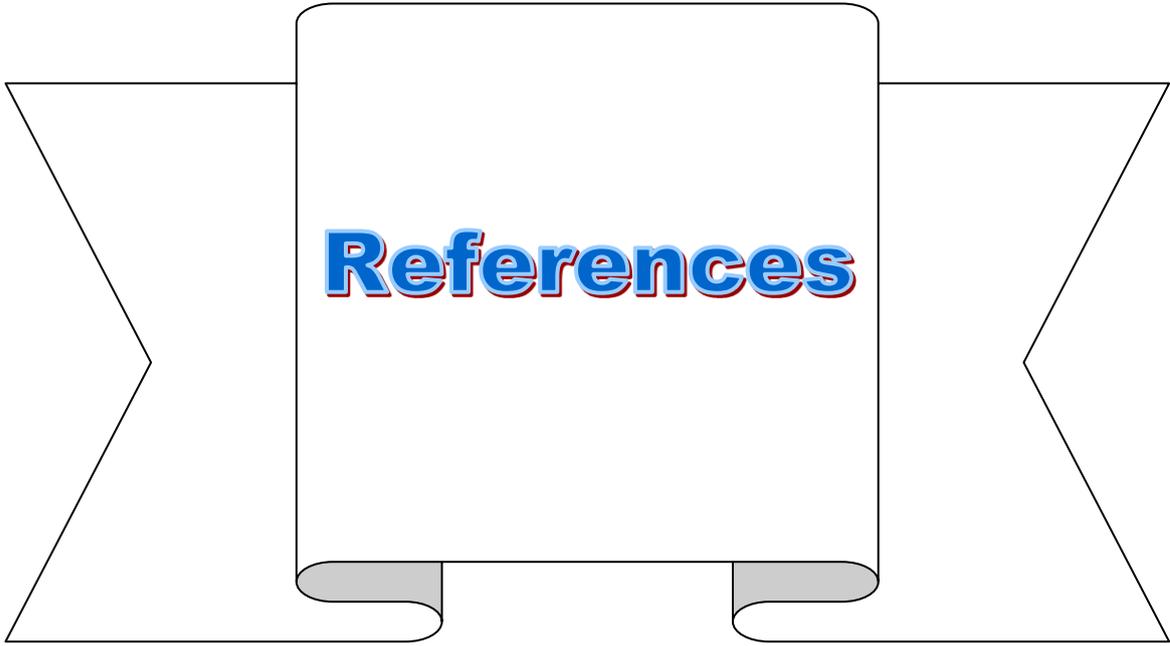
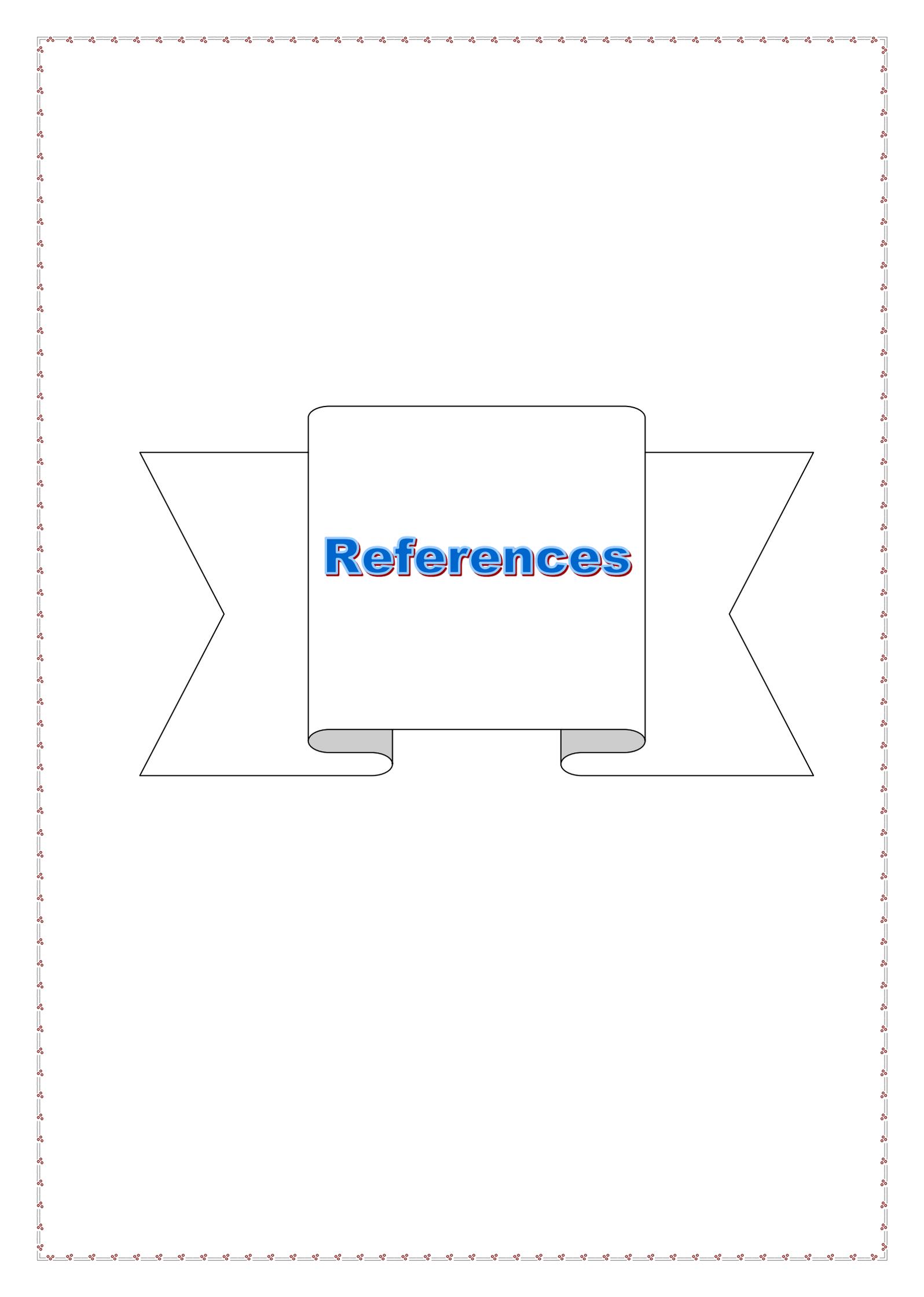
There is a high significant Relationship between presences of Newborn Complications after CS and BMI at delivery, but have no relationship with other maternal demographical variables.

14- There is Significant Relationship between presences of Newborn Complications during VD and Interval between last pregnancies but no relationship with other maternal reproductive variables.

15- There is a significant Relationship between presences of Newborn Complications after CS and maternal parity, but no relation between Newborn Complications after VD and maternal reproductive data

6.2 Recommendations

1. Using different types of mass media to stimulate public awareness about complications of CS particular in PHCc(appendix E)
2. collaborative work between the "ministry of health and ministry of high education and scientific research" about advantage and disadvantage of CS & VD in the curriculum of medical institute and other medical school and Further studies should conducted to evaluate the complications of cesarean section and causes of elective cesarean section with large sample and accurate registration or documentation.
3. It is required to evaluate and execute treatments aimed at reducing needless CS. Hospitals that are mother-friendly, standard labor and delivery procedures, preparatory courses for mothers, midwives, and gynecologists, and workshops for specialists and midwives are all part of the "health sector evolution policy." While these initiatives were successful, high rates of CS continue, and more efforts are required to optimize CS usage.



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The title is centered within a white rectangular box with rounded corners and a thin black border. This box is flanked by two white, arrow-shaped banners pointing towards the center. At the bottom of the central box, there are two grey, rounded rectangular shapes that resemble the ends of a ribbon or the base of a scroll.

**Appendix
A (1, 2, 3, 4,
5)**

Administrative
agreements

Ministry of Higher Education and Scientific Research
 وزارة التعليم العالي والبحث العلمي

University of Babylon
 College of Nursing

جامعة بابل
 كلية التمريض
 لجنة الدراسات العليا

Ref. No. /
 Date: /

العدد: ١٤٧٥
 التاريخ: ٢٠٢١ / ٤ / ٢٩

التي / دائرة صحة النجف - مركز التدريب والتطوير
 م/ تسهيل مهمة

تحية طيبة :
 يطيب لنا حسن التواصل معكم ويرجى تفضلكم بتسهيل مهمة طالب الدكتوراه
 (فاطمة فاضل جواد) لغرض جمع عينة دراسة الدكتوراه والخاصة بالبحث
 الموسوم :
 العلاقة بين الطرائق الولادة و مضاعفاتها الناتجة على الام والوليد في مستشفى
 الزهراء التعليمي للنسائية والتوليد في مدينة النجف الاشرف.

Association Between Modes of Delivery Complications out come on
 Maternal and newborn at AL Zahraa Maternity Teaching Hospital in
 ALNajaf ALAshraf city

مع الاحترام ...

المرافقات //
 • بروتوكول .
 • استبانة .

دائرة صحة النجف
 شعبة المراجعين
 الرقم / ١٤٧٥٦
 التاريخ / ٢٠٢١ / ٤ / ٢٩
 امين الصندوق

ا.م.د. حسام عباس داود
 معاون العميد للشؤون العلمية والدراسات العليا
 ٢٠٢١ / ٤ / ٢٩

صورة تته الى //
 • مكتب السيد العميد للتفضل بالاطلاع مع الاحترام .
 • لجنة الدراسات العليا
 • الصادرة .

E-mail:nursing@uobabylon.edu.iq

STARS
 BUILT FOR CHALLENGE
 TEACHING
 INCLUSIVENESS
 FACILITIES

07711632208
 009647711632208

وطني
 المكتب

Republic of Iraq
 Al-Najaf Al-Ashraf Governorate
 Najaf Health Directorate
 Training and Human Development Center

No.
 Date:

جمهورية العراق
 محافظة النجف الاشرف
 دائرة صحة النجف
 مركز التدريب والتنمية البشرية
 العدد:
 التاريخ: ٢٠٢١/٤/١٦

الى / مستشفى الزهراء التعليمي
 مستشفى الحكيم العام
 م / تسهيل مهمة

تحية طيبة ...
 اشارة الى كتاب جامعة بابل / كلية التمريض ذي العدد ١٣٧٥ في ٢٠٢١/٤/٢٩ بخصوص تسهيل
 مهمة الباحثة طالبة الدكتوراه (فاطمة فاضل جواد) لإجراء دراستها الموسومة:
 العلاقة بين طرائق الولادة ومضاعفاتها الناتجة على الام والوليد في مدينة النجف الاشرف
 نرجو بيان رأيكم حول اجراء البحث في مؤسستكم وتزويده بالبيانات والمعلومات المطلوبة
 لإجراء البحث واعلامنا ليتسنى لنا اتخاذ ما يلزم .. مع التقدير والاحترام.

المرافقات :
 استمارة الموافقة على اجراء بحث توقع وتعاد الينا.

الدكتور
 حيدر خضير عباس
 مدير مركز التدريب والتنمية البشرية
 ٢٠٢١ / ٤ / ١٦

السيد الدكتور / هادي الربيع
 د. رانند عبد طالب شريف
 مدير القسم انشئي

نسخة منه الى /
 - مكتب السيد المدير العام المحترم / للعلم مع الاحترام .
 - مركز التدريب والتنمية البشرية / مع الأوليات

السيد الدكتور
 لمانح لسا بجموافتكم
 مع التقدير
 ١١/١١
 هادي خضير عباس
 ٢٠٢١ / ٤ / ١٦

- اشارة صريحة
 - الدارها
 - وتمت الاجراءات والا دلها
 - والبقا بالواقعة كذا امرنا
 - كذا مضية
 ١٦/٤/٢٠٢١

دائرة صحة النجف
 مركز التدريب والتنمية البشرية
 ٢٠٢١ / ٤ / ١٦
 التاريخ

تسلسل الاستمارة: ٢٢٦

Republic of Iraq

Al-Najaf Al-Ashraf Governorate

Najaf Health Directorate

Training and Human Development Center



جمهورية العراق
محافظة النجف الاشرف
مركز التدريب والتنمية البشرية

No.
Date:

مركز التدريب و التنمية البشرية
العدد:

١٩١٥٩
التاريخ ٢٠٢١/٥/٢٦

إلى/ جامعة بابل / كلية التمريض
م / تسهيل مهمة

تحية طيبة ...
إشارة إلى كتابكم ذي العدد ١٣٧٥ في ٢٠٢١/٤/٢٩ بخصوص تسهيل مهمة الباحثة طالبة /الدكتوراه
(فاطمة فاضل جواد) للحصول على الموافقة الاخلاقية للبحث الموسوم:

العلاقة بين طرائق الولادة ومضاعفاتها الناتجة على الام والوليد في مدينة النجف الاشرف
حصلت موافقة اللجنة العلمية للبحوث في مركز دائرتنا على إجراء البحث في (مستشفى الزهراء التعليمي
، مستشفى الحكيم العام) مع التأكيد على الالتزام الكامل بتعليمات السلامة الحيوية والضوابط الاخلاقية
والحصول على موافقة المشاركين قبل الشروع بالبحث والحفاظ على خصوصيتهم وعدم افشاء البيانات او
استخدام العينات لغير اغراض البحث العلمي ... على أن لا تتحمل دائرتنا أية تبعات مادية .. مع الاحترام.

ملاحظة:
تم استيفاء أجور جباية البحوث والبالغة (١٠٠٠٠) عشرة الاف دينار بموجب الوصل المرقم (٨٨٤٧٠٦) في ٢٠٢١/٤/٢٩

١٥
الدكتور

مرضون كامل الكندي

المدير العام

٢٠٢١ / ٥ / ٢٦



نسخة منه الم /

مكتب المدير العام / للعلم مع الاحترام .
مركز التدريب و التنمية البشرية / مع الأوليات .
مستشفى الزهراء التعليمي ، مستشفى الحكيم العام للتفضل بالاطلاع وتسهيل مهمة اجراء البحث مع التقدير

Republic of Iraq

Al-Najaf Al-Ashraf Governorate

Najaf Health Directorate

Training and Human Development Center

No.
Date:



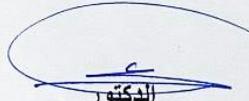
جمهورية العراق
محافظة النجف الاشرف
مديرية الصحة
النجف

مركز التدريب و التنمية البشرية
العدد: ٦٠٥١
التاريخ: ٢٠٢١/٤/٢٩

الى / مستشفى الزهراء التعليمي
مستشفى الحكيم العام
م / تسهيل مهمة

تحية طبية ...
اشارة الى كتاب جامعة بابل / كلية التمريض ذي العدد ١٣٧٥ في ٢٩/٤/٢٠٢١ بخصوص تسهيل
مهمة الباحثة طالبة الدكتوراه (فاطمة فاضل جواد) لإجراء دراستها الموسومة:
العلاقة بين طرائق الولادة ومضاعفاتها الناتجة على الام والوليد في مدينة النجف الاشرف
نرجو بيان راىكم حول اجراء البحث في مؤسستكم وتزويده بالبيانات والمعلومات المطلوبة
لإجراء البحث واعلامنا ليتسنى لنا اتخاذ ما يلزم .. مع التقدير والاحترام.

المرافقات:
استمارة الموافقة على اجراء بحث توقع وتعاد الينا.


الدكتور
حيدر خضير عباس

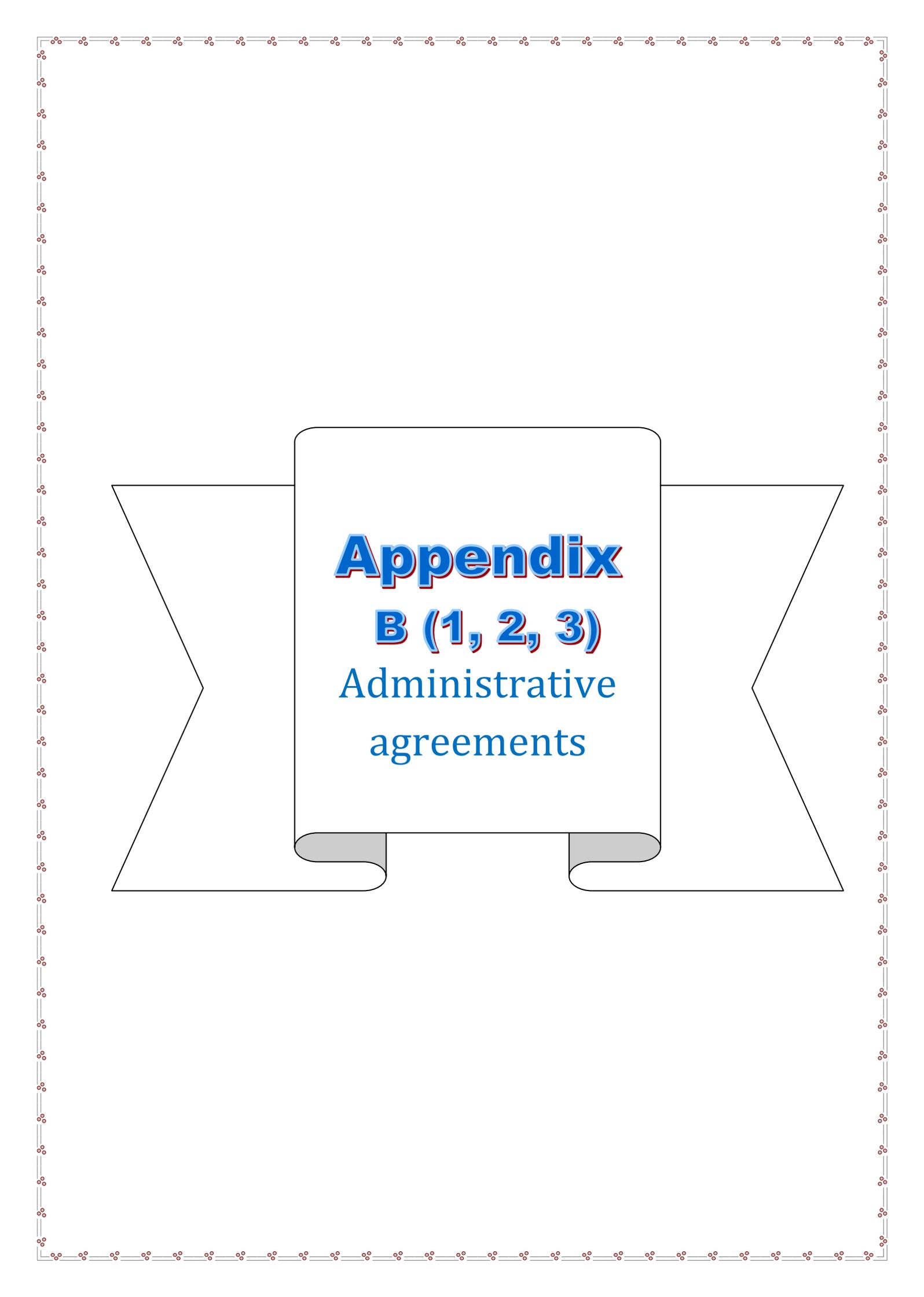
مدير مركز التدريب والتنمية البشرية

٢٠٢١/٤/٢٩

نسخة منه الى /

- مكتب السيد المدير العام المحترم / للعلم مع الاحترام .
- مركز التدريب والتنمية البشرية / مع الأوليات

م. سائمه
لصفا
١٠/١٠/٢٠٢١
م. السيد و...



Appendix
B (1, 2, 3)
Administrative
agreements

The graphic features a central white rectangular area with rounded corners and a drop shadow, containing the text. This area is flanked by two large, white, arrow-shaped banners pointing towards the center. The entire composition is set against a background with a decorative border of repeating floral motifs.

B1

Ministry of Higher Education
and Scientific Research

جامعة بابل
UNIVERSITY OF BABYLON

وزارة التعليم العالي والبحث العلمي

جامعة بابل
كلية التمريض

University of Babylon
College of Nursing

Ref. No. :
Date: / /

العدد : ١٧٤٢
التاريخ : ٢٠٢٢ / ٤ / ٢٨



الى /جامعة بابل / كلية التربية للعلوم الانسانية - مكتب السيد العميد
م/ مقوم لغوي

تحية طبية :
يرجى التفضل بتحديد عضو هيئة تدريس في كليتنا لغرض تقويم رسالة الدكتوراه للطالبة (فاطمة فاضل جواد) والموسومة ب
العلاقة بين الطرائق الولادة و مضاعفاتها الناتجة لآلام والوليد في مستشفى الزهراء
التعليمي للنسائية والتوليد في مدينة النجف الاشرف.

Association Between Modes of Delivery Complications out come on Maternal
and newborn at AL Zahraa Maternity Teaching Hospital in AL-Najaf AL-
Ashraf city

مع الاحترام ...


أرد امين عجيل ياسر الياسري
العميد
٢٠٢٢ / ٤ / ٢٨

نسخة منه الى //
مكتب السيد العميد... للتفضل بالاطلاع مع الاحترام.
مكتب السيد معاون العميد للشؤون العلمية... للتفضل بالاطلاع مع الاحترام.
وحدة الدراسات العليا مع الاوليات.

وطني
المكتب

07711632208
009647711632208

E-mail:nursing@uobabylon.edu.iq



www.uobabylon.edu.iq

B2

Ministry of Higher Education
and Scientific Research

جامعة بابل
كلية التمريض والعلوم الإنسانية

University of Babylon
College of Nursing

العدد : ١٧٤٣
التاريخ : ٢٠٢٢ / ٤ / ٢٨

Ref. No. :
Date: / /

مكتبة السيد العميد

الى / جامعة بابل / كلية التربية للعلوم الانسانية - مكتب السيد العميد
م / مقوم لغوي

تحية طبية :
يرجى التفضل بتحديد عضو هيئة تدريس في كليتك لغرض تقويم رسالة الدكتوراه للطالبة (فاطمة فاضل جواد) والموسومة ب
العلاقة بين الطرائق السولادة و مضاعفاتها الناتجة للام والوليد فى مستشفى الزهراء
التعليمي للنسائية والتوليد في مدينة النجف الاشرف.

Association Between Modes of Delivery Complications out come on Maternal
and newborn at AL Zahraa Maternity Teaching Hospital in AL-Najaf AL-
Ashraf city

مع الاحترام ...

أ.د. امين عجيل ياسر الياسري
العميد
٢٠٢٢ / ٤ / ٢٨

نسخة منه الى
مكتب السيد العميد... للتفضل بالاطلاع مع الاحترام.
مكتب السيد معاون العميد للشؤون العلمية... للتفضل بالاطلاع مع الاحترام.
وحدة الدراسات العليا مع الاوليات.
الصافية

E-mail:nursing@uobabylon.edu.iq

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Ministry of Higher Education
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وزارة التعليم العالي والبحث العلمي

جامعة بابل

كلية التربية للعلوم الانسانية

College of Education for Human Sciences

UNIVERSITY OF BABYLON

Ref. No :
Date: / /

العدد : ٤٤٦١
التاريخ : ١٥ / ١١ / ٢٠٢٢

جامعة بابل / كلية التمريض
السوارة
العدد / ١٤٧٤
التاريخ ٢٠٢٢ / ١١ / ١٥

الدراسات
كلية التربية للعلوم الانسانية

جامعة بابل / كلية التمريض

مكتب السيد معاون العميد للشؤون العلمية المحترم

م / إعادة رسالة

تحية طيبة:

نعيد إليكم اطروحة طالبة الدراسات العليا / الدكتوراه (فاطمة فاضل جواد) بعد
تقويمها لغوياً من قبل (أ.م.د. حسين حميد معيوف) من قسم اللغة الانكليزية في كليتنا،
وقد ثبتت الملاحظات على متن الاطروحة يرجى من الباحثة الالتزام بها .

*** مع الاحترام ***

٢. طاهر المزيح

١. هادي

الدراسات
كلية التربية للعلوم الانسانية

الإدارة العامة
معاون العميد للشؤون العلمية
والدراسات العليا

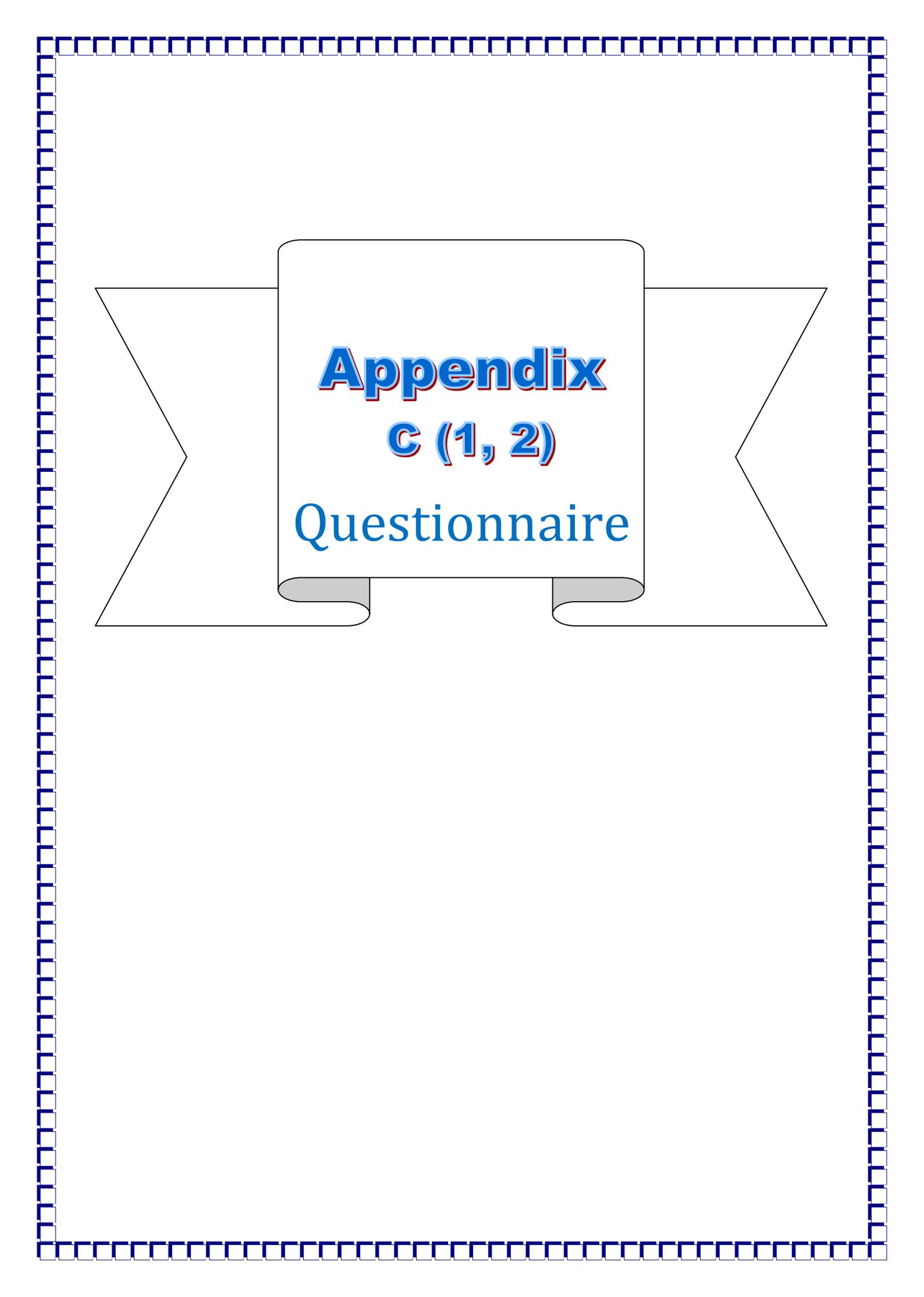
نسخة منه الى //

- الدراسات العليا .
- الصادرة .

البريد الالكتروني bad_edu_humsci@yahoo.com

امنية 07801010633

www.uobabylon.edu.iq

The image shows a cover page for a questionnaire. It features a central white rectangular box with rounded corners and a grey shadow at the bottom, set against a background of two large, white, arrow-shaped banners pointing towards each other. The entire page is enclosed in a decorative blue border with a repeating square pattern. The text is centered within the white box.

Appendix

C (1, 2)

Questionnaire

Part four: Mode of delivery

Normal vaginal delivery

17. Are there Complications of mother **during** NVD? Yes
No

If yes which the complication?

- a) Shoulder dystocia Yes ____ No ____
- b) Cord prolapse Yes ____ No ____
- c) Excessive bleeding Yes ____ No ____
- d) Failure to progress of labour(Prolonged birth) Yes ____ No ____
- e) Obstructed labor Yes ____ No ____
- f) Perineum laceration Yes ____ No ____
- g) Cervical tear Yes ____ No ____
- h) Uterine rapture Yes ____ No ____
- i) Uterus that is turned inside out (inverted uterus) Yes ____ No ____
- j) Intrauterine death
- k) Others Yes ____ No ____

18. Are there complications of mother **after** NVD? Yes
No

If yes which the complication

- a) Postpartum hemorrhage Yes ____ No ____
- b) Puerperal Infection Yes ____ No ____
- c) Severe anemia Yes ____ No ____
- d) Hypotension Yes ____ No ____
- e) Episiotomy infection Yes ____ No ____
- f) Episiotomy tearing Yes ____ No ____
- g) Others Yes ____ No ____ What is it.....

Cesarean section

19. Type of caesarean section 1- Elective
2- Emergency

20.If emergency what was the Indications ?

- a) Suspected fetal asphyxia Yes ____ No ____
- b) Prolonged I stage of delivery Yes ____ No ____
- c) Prolonged second stage Yes ____ No ____
- d) Fetopelvic disproportion Yes ____ No ____
- e) Dystocia Yes ____ No ____
- f) Breech presentation Yes ____ No ____
- g) Repeated CS Yes ____ No ____
- h) Others Yes ____ No ____ what is it

21- Are there Complications of mother **during** cesarean section? yes
No

If yes which the complication?

- a) Hemorrhage Yes ____ No ____
- b) Bladder injury Yes ____ No ____
- c) Bowel injury Yes ____ No ____
- d) Fetal laceration Yes ____ No ____
- e) Ureter injury Yes ____ No ____
- f) Uterine rupture Yes ____ No ____
- g) Hysterectomy Yes ____ No ____
- h) Admission to intensive care unit
Yes ____ No ____
- i) Others Yes __ No— what is it

22- Are there Complications of mother **after** cesarean section: yes
No

If yes which the complication?

- a) Hemorrhage Yes ____ No ____
- b) Surgical Wound infection Yes ____ No ____
- c) Endometritis Yes ____ No ____
- d) Severe Anemia Yes ____ No ____
- e) Sub fascial hematoma Yes ____ No ____
- f) Urinary tract infection Yes ____ No ____
- g) Venous thromboembolism Yes ____ No ____
- h) Uterine rupture Yes ____ No ____
- i) Constipation Yes ____ No ____
- j) Others Yes __ No— what is it

Anesthesia

23. The type of anesthesia used

- a) General anesthesia
- b) Spinal blockade

24. Are there Complications of mother related to the anesthesia? yes
No

If yes which the complication?

- a) Blood clot Yes ____ No ____
- b) Fever, headache Yes ____ No ____
- c) Emergency hysterectomy Yes ____ No ____
- d) Reaction to medication Yes ____ No ____
- e) Emotional difficulty Yes ____ No ____
- f) Baby complications Yes ____ No ____

Apendex C2

الجزء الأول \ المعلومات الديموغرافية للمشاركات

١- العمر

- <٢٠
 ٢٠ - ٢٩
 ٣٠ - ٣٩
سنة >٤٠

٢- المؤهل العلمي

- لاتقرأ ولا تكتب
 -ابتدائية او اقل
 -ثانوية
 -معهد او اعلى

٣- مكان السكن المدينة الريف

٤- المهنة موظفة ربة بيت

٥- الوزن ----- كغم (قبل الحمل). الطول----- سم

معدل كتلة الجسم :

- <٢٥
 ٢٥-٢٩
 ≥ ٣٠

٦- الوزن ----- كغم (عند الولادة). الطول----- سم

معدل كتلة الجسم :

- <٢٥
 ٢٥-٢٩
 ≥٣٠

الجزء الثاني المعلومات الإيجابية

٧- العمر في الزواج

- <٢٠
 ٢٠ - ٢٩
 ٣٠ - ٣٩
 >٤٠

٨- عدد مرات الحمل

- اول حمل
 متعددة الحمل

٩- عد الولادات

- اول ولادة
 متعددة الولادات

١٠- الإجهاض

- نعم
 لا

١١- العقم سابقا

- نعم
 لا

١٢- التباعد بين الولادات الأخيرة

- اول ولادة
 اقل من ٢ سنة
 اكثر من ٢ سن

١٣- طريقة الولادة قبل اخر طفل

- اول ولادة
 ولادة طبيعية
 ولادة قيصرية

١٤- عدد الأطفال

- لا يوجد
 ١
 اكثر من ٢

الجزء الثالث :

١٥- أ- التاريخ المرضي للعائلة

- ١- الضغط خلال الحمل
٢- سكري الحمل
٣- امراض القلب
٤- امراض الكلى
٥- امراض الجهاز التنفسي
٦- امراض الغدد الصماء
٧- امراض الجهاز الهضمي

- نعم..... كلا
نعم..... كلا
نعم..... كلا
نعم..... كلا
نعم..... كلا
نعم..... كلا
نعم..... كلا

١٦- ب- المشكلات المرضية خلال الحمل

- ١- زيادة حجم السائل الامنيوسي
٢- نقص حجم السائل الامنيوسي
٣- افرزات مائية
٤- تمزق مبكر للغشاء الامنيوسي
٥- تدلي في الحبل السري
٦- أخرى
تذكر

- نعم..... كلا
نعم..... كلا
نعم..... كلا
نعم..... كلا
نعم..... كلا
نعم..... كلا

الجزء الرابع | طرائق الولادة الولادة الطبيعية

١٧- هل يوجد مضاعفات خلال الولادة الطبيعية؟

نعم
لا

إذا كانت الإجابة نعم ماهي

- أ- عسر الولادة الكتف كلا نعم
ب- نزف كلا نعم
ت- فشل في تقدم الولادة كلا نعم
ث- ولادة متعسرة كلا نعم
ج- تمزق العجان كلا نعم
ح- تمزق عنق الرحم كلا نعم
خ- تمزق الرحم كلا نعم
د- انقلاب الرحم كلا نعم
ذ- موت الطفل داخل الرحم كلا نعم
س- تدلي الحبل السري كلا نعم
ي- أخرى كلا نعم
تذكر

١٨- هل يوجد مضاعفات بعد الاودة الطبيعية؟

نعم
لا

إذا كانت الإجابة نعم ماهي

- أ- نزف ما بعد الولادة كلا نعم
ب- حمى النفاس كلا نعم
ت- فقر دم شديد كلا نعم
ث- انخفاض ضغط الدم كلا نعم
ج- التهاب منطقة (قص العجان المساعدة للولادة) كلا نعم
ح- تمزق منطقة (قص العجان المساعدة للولادة) كلا نعم
خ- أخرى كلا نعم
تذكر

الولادة القيصرية

١٩- نوع الولادة

طارئة اختيارية

٢٠- إذا كانت طارئة؟ ما سبب الولادة الطارئة؟

- أ- اختناق الجنين داخل الرحم كلا نعم
ب- طول مدة الطور الأول من الولادة كلا نعم
ت- طول مدة الطور الثاني للولادة كلا نعم
ث- عدم تناسب حجم الجنين مع عظام الحوض كلا نعم
ج- تعسر الولادة كلا نعم

- ح- وضع الجنين داخل الرحم
 خ- ولادة قيصرية ثانية
 د- أخرى
 تذكر.....
- نعم..... كلا
 نعم..... كلا
 نعم..... كلا

٢١- هل توجد مضاعفات خلال العملية القيصرية؟

نعم
 لا

إذا كانت الإجابة نعم هل هي؟

- أ- نزف
 ب- جرح المثانة
 ت- جرح الأمعاء
 ث- جرح الرحم
 ج- تمزق الرحم
 ح- قلع الرحم
 خ- الدخول الى العناية المركزة
 د- أخرى
 تذكر.....
- نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا

٢٢- هل توجد مضاعفات بعد الولاد القيصرية؟

- أ- نزف
 ب- التهاب جرح العملية
 ت- التهاب بطانة الرحم
 ث- فقر دم شديد
 ج- ورم دموي تحت اللفافة
 ح- التهاب المجاري البولية
 خ- الانصمام الخثاري الوريدي
 د- تمزق الرحم
 ذ- امسك
 ر- أخرى
 تذكر.....
- نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا

التخدير

٢٣- نوع التخدير

عام
 نصفي

٢٤- هل توجد مضاعفات بسبب التخدير؟

نعم
 لا

إذا كانت الإجابة نعم هل هي؟

- أ- مشكلة بتخثر الدم
 ب- صداع شديد
 ت- مضاعفات على الطفل
 ث- الدخول للعناية المركزة
 ج- توقف القلب الماجئ
 ح- أخرى
- نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا
 نعم..... كلا

الجزء الخامس: الوليد

المعلومات الديموغرافية للوليد

٢٥- وزن الوليد

< ١٠٠٠ غم

١٠٠٠-١٥٠٠

٢٥٠٠-٢٠٠٠

≥ ٢٥٠٠ غم

٢٦- مدة الحمل عند الولادة

(> ٣٧)

(٣٧-٤١)

(≤ ٤٢)

٢٧- جنس الوليد

ذكر

انثى

٢٨- حالة الجنين

حي

ميت

٢٩- توجد مضاعفات الولادة الطبيعية للوليد خلال الولادة؟

نعم

لا

إذا كانت الإجابة نعم ماهي؟

- | | | |
|-----------|----------|--------------------|
| كلا | نعم..... | أ- كسر عظم الترقوة |
| كلا | نعم..... | ب- إصابة رأس الطفل |
| كلا | نعم..... | ت- سقوط الطفل |
| كلا | نعم..... | ث- خلع ولادي |
| كلا | نعم..... | ج- أخرى |

٣٠- هل توجد مضاعفات بعد الولادة الطبيعية للوليد؟

نعم

لا

إذا كانت الإجابة نعم ماهي؟

- | | | |
|-----------|----------|--|
| كلا | نعم..... | أ- زرقة الطفل |
| كلا | نعم..... | ب- يحتاج دخول العناية المركزة |
| كلا | نعم..... | ت- مشاكل توازن الجلوكوز في الدم |
| كلا | نعم..... | ث- درجة ابكار في الدقيقة الأولى ≤ 7 |

ح- درجة ابكار في الدقيقة الخامسة ≤ 7

نعم..... كلا

خ- اليرقان عند الوليد نعم..... كلا

د- أخرى نعم..... كلا

تذكر.....

٣١-توجد مضاعفات خلال الولادة القيصرية للوليد؟

نعم

كلا

إذا كانت الإجابة نعم ماهي؟

أ- كسر عظم الترقوة نعم..... كلا

ب- إصابة رأس الطفل نعم..... كلا

ت- سقوط الطفل نعم..... كلا

ث- خلع ولادي نعم..... كلا

ج- تجمع دموي تحت الجلد في الرأس نعم..... كلا

ح- تجمع سائل تحت الجلد في الرأس نعم..... كلا

خ- أخرى نعم..... كلا

٣٢-توجد مضاعفات للوليد بعد العملية القيصرية؟

نعم

لا

إذا كانت الإجابة نعم ماهي؟

أ-أزرقه الطفل نعم..... كلا

ب- يحتاج دخول العناية المركزة نعم..... كلا

ت- مشاكل توازن الجلوكوز في الدم نعم..... كلا

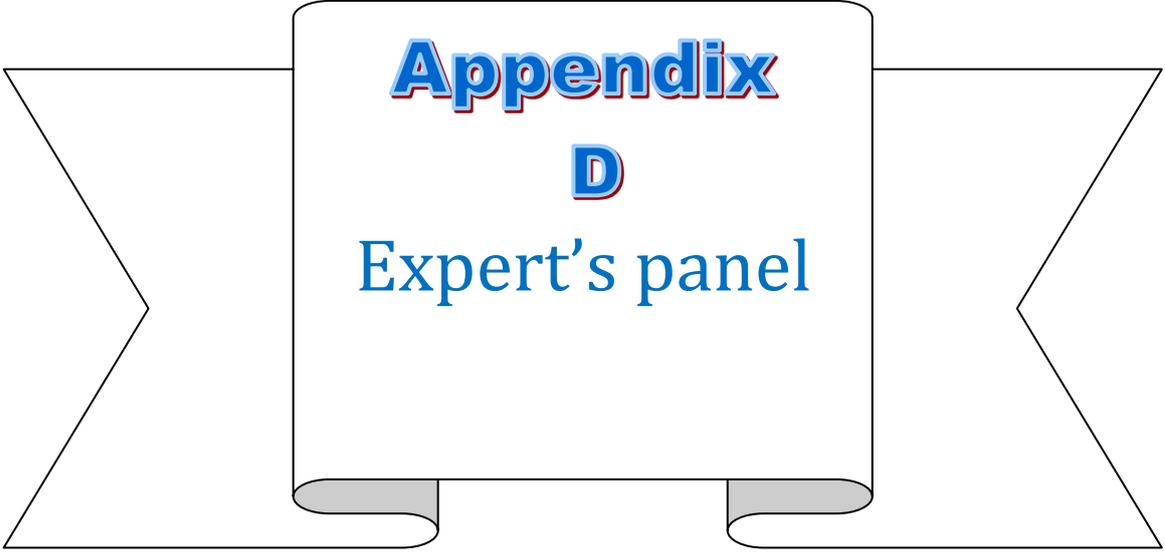
ث- ابكار في الدقيقة الأولى ≤ 7 نعم..... كلا

ج- درجة ابكار في الدقيقة الخامسة ≤ 7 نعم..... كلا

أ- اليرقان عند الوليد نعم..... كلا

أخرى نعم..... كلا

تذكر.....



Appendix

D

Expert's panel

قائمة الخبراء

D

ت	اسم الخبير	اللقب العلمي	الختصاص	مكان العمل	سنوات الخدمة
1-	د. اقبال مجيد	أستاذ متمرس	دكتورة تمرّيز النسائية	كلية بغداد للعلوم الطبية	٤٢ سنة
2-	د. سعديّة هادي حميدي	استاذ	دكتورة تمرّيز صحة الام والوليد	كلية المستقبل الاهلية الجامعة	٤٠ سنة
3-	د. سلمى كاظم جهاد	استاذ	دكتوراه في تمرّيز صحة المجتمع	جامعة بابل كلية التمريض	٣٠ سنة
4-	د. نهاد محمد الدوري	استاذ	دكتوراه في تمرّيز الاطفال	جامعة بابل _ كلية التمريض	٣٥ سنة
5-	سحر ادهم علي	أستاذ	دكتورة تمرّيز بالغين	جامعة بابل / كلية التمريض	٢٥ سنة
6-	د. فاطمة وناس راضي	استاذ	دكتوراه في تمرّيز صحة المجتمع	جامعة الكوفة كلية التمريض	٢٠ سنة
7-	د. حسين جاسم الابراهيمى	استاذ	دكتوراه في تمرّيز صحة المجتمع	جامعة بابل كلية التمريض	٢٩ سنة
8-	د. مرتضى عادي الجبوري	أستاذ مساعد	دكتوراه في تمرّيز صحة المجتمع	كلية التمريض جامعة وارث الأنبياء	٣٠ سنة
9-	د. حسن علوان بيعي	استاذ	دكتوراه طب اصحة المجتمع	جامعة بابل _ كلية التمريض	٤٥ سنة
10	اخلاص علي حسين	أستاذ مساعد	دكتورة بورد امراض نساء وولادة	كلية الطب الجامعة العراقية	٨ سنوات
11	د. اثير كاظم عبادي	أستاذ مساعد	دكتوراه صحة عامة امراض انتقالية	جامعة الفرات الأوسط معهد تقني الكوفة	٢٢ سنة
12	د. عبد الرزاق ياسين	أستاذ مساعد	بكالوريوس طب وجراحة عامة	المعهد التقني كوفة	٣٠ سنة
13	د. كافي محمد ناصر الاسدي	استاذ مساعد	دكتوراه في تمرّيز صحة المجتمع	جامعة الكوفة _ كلية التمريض	٤٠ سنة
14	د. عبلة موسى عبد الله	استشاري تمرّيز	دكتوراه صحة الام والوليد	وزارة الصحة والبيئة مسؤول شعبة القبالة	٢٠ سنة

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة بابل كلية التمريض
٢٠٢٠-٢٠٢١



طرائق الولادة و الإخصار الصحيح

اختصاص

د شكريه شهدان جيباد الحسيني

طالبة الدكتوراه : شاطمة قاضل جواد الحسيني

مقدمة:

الولادة، اللحظة الاستثنائية التي يبتلى فيها ذلك الكائن الحي الطيف، الذي انتظره والداه بشغف شهيراً، كي يملأ دنياهم صفحياً وآمالاً .

وقد أصبحت تقضل الكثير من النساء الولادة القيصرية اختصاراً لإمكانية تحديد موعد لها، وترتيب نمط الحياة، وظروف العمل على أساسه . . . إلخ. ويطلق خوف الكثيرات من آلام الولادة الطبيعية، يظل في مقدمة أسباب اللجوء إلى الولادة القيصرية.

تأتي الـ ٣ عاماً الأخيرة، تضاعف عدد الولادات القيصرية أكثر من ٣ مرات، من نحو ٦٪ من جميع المواليد إلى ٢١٪.

ومن المفترض أن تكون الولادة القيصرية هي الحل الأخير وأبسط الخيار الأول، إذ يمكنها أن تزيد من فرصة الوفاة بنسبة ٦٠٪ على الأقل، وفي بعض الظروف تبلغ ٧٠٪ حسب ما أقامت الدراسات.

كما يمكن أن تؤدي إلى خطر تعرض المرأة لمضاعفات تهدد حياتها أثناء الولادة، مثل النزيف وتورق الرحم واستئصال الرحم والسكتة الشبيهة بنحو ٥ أضعاف، ويرتفع هذا الخطر أكثر في الولادات اللاحقة.



تجاً كثير من النساء إلى الولادات القيصرية اختصارياً، فهل يضمن مضرها على أفتانهن؟

- ✓ ومن أسباب زيادة معدلات الولادات القيصرية اعتقاد الأطباء في مرحلة سابقة أنها أكثر أماناً للطفل والأم، وهو ما أثبتت الدراسات الحديثة عدم صحته.
- ✓ وهناك أسباب أخرى لاختيار الولادات القيصرية مثل الرغبة في تحديد يوم الولادة، وتصوير خروج الوليد من بطن أمه.

ولكن... هل يترك الأهل المخاطر التي يتعرضون لها أنفسهم ومواليدهم عندما يختارون الولادة القيصرية دون ضرورة طبية؟!

- ✓ خلال الولادة الطبيعية يقضي الطفل بالمختبريا البنية التي تساعده على هضم الحليب وهو ما لا يحصل عليه المولود بعملية قيصرية.
- ✓ مواليد العمليات القيصرية معرضون أكثر لبعض الأمراض مثل الربو والحساسية، لاقتصر هم للمختبريا الناقمة التي يفرزها مهبل الأم وقت الولادة الطبيعية.
- ✓ التفاعلات التي تحصل نتيجة التخدير، يمكن حدوث تفاعلات خطيرة مع أي نوع من أنواع المخدر.



كيفية الاستعداد للولادة الطبيعية؟

الاستعداد الجسدي عن طريق ممارسة التمارين

والتمارين وتمتدح تمارين التنفس والتمارين

والتمارين

إيجاد وقت فراغ للتأمل والاسترخاء أثناء الحمل أو بعد

الولادة أو بعد فترة من الزمن (فترة الولادة)

الحصول على نصائح من الأخت

حضور دورات التحضير عن طريق الولادة الطبيعية

التحدث مع الأخت

الحصول على نصائح من الأخت أو الأخت عن كيفية التعامل مع

الولادة الطبيعية بطريقة صحية مع الأخت



لماذا الولادة الطبيعية أفضل من القيصرية؟

الفرق بين الولادة الطبيعية والقيصرية: الإيجابيات

تكون الأيام أقل بالمقارنة مع الولادة القيصرية.

تتعافى الأم بشكل أسرع، يكون لدى الأم فرصة للبدء

بإرضاع الطفل رضاعة طبيعية على الفور. احتمالية

الإصابة بأمراض بالمستقبل عادة ما تكون أقل.

هل يمكن أن اختار الولادة القيصرية؟

يستعمل الأطباء الولادة القيصرية عندما يعتقدون

أنها أكثر أماناً من الولادة المهبلية للمرأة أو للرضيع

أو لطفلها، كما هي الحال في الحالات التالية: عندما

يتقدم المخاض ببطء شديد قراءة المزيد عندما يكون

الجنين في وضعية غير طبيعية

ما هي مميزات الولادة الطبيعية للطفل؟

تساعد الولادة الطبيعية على تشكيل رأس الجنين

وقت تولده، كما أنها تعرض الطفل لبيكتريا مفيدة

تزيد من قوة جهازه المناعي. تعمل الولادة الطبيعية

على وقاية الطفل من الكثير من الأمراض، مثل الربو

والحساسية، وتقلل من إصابة الطفل بمرض السكر

والسمنة في المستقبل.

هل يمكن اختيار طريقة الولادة؟

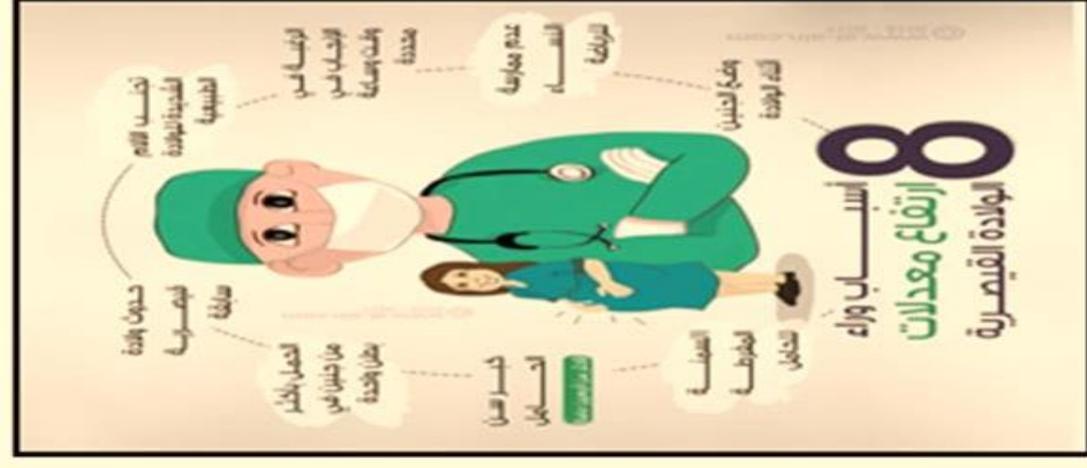
إذا أحببت طلقاً غير ولادة قيصرية تم حملت مرة

أخرى، فقد تتمكنين من الاختيار بين تحديد موعد

ولادة قيصرية أخرى أو إجراء ولادة طبيعية عقب

الولادة القيصرية

ما الأسباب التي تجعل الولادة غير طبيعية؟



ماهي الولادة الطبيعية؟



هي عملية فسيولوجية تبدأ تلقائياً دون تحفيز، منخفصة المخاض، من بداية المخاض، إلى نهاية الولادة.



تتم ولادة الطفل سهواً، من الرأس أو من المقعد بشكل تلقائي عبر المهبل، بعد فترة حمل دامت ٣٧ إلى ٤٢ أسبوعاً، بدون تدخلات طبية إلا عند الضرورة.



تبدأ الولادة الطبيعية بالمخاض الذي يأتي على شكل انقباضات لرحم الأم، تزداد مدتها وحدتها وتترنسا كلما اقتربت ساعة الولادة، وتؤدي إلى توسع عنق الرحم.

متى يكون موعد الولادة الطبيعية؟



مدة الحمل في الوضع الطبيعي هي ٤٠ أسبوعاً.



قد يختلف توقيت الولادة بين امرأة وأخرى، وبين حمل وآخر.



معزفة موعد الولادة من الأمور التي يصعب التنبؤ بها، غير أن جسم الحامل يعطي العديد من المؤشرات التي تؤخذ القراره.



غالباً ما يحدث المخاض ما بين ٣٧-٤٢ أسبوعاً من موعد آخر دورة شهرية، أي بعد دخول المرأة في الشهر التاسع من الحمل.

جمهورية العراق

وزارة التعليم العالي والبحث العلمي

جامعة بابل كلية التمريض

٢٠٢١-٢٠٢٠



استطيتي للولادة؟

تعرفني معنا عن كيفية الاستعداد للولادة

الطبيعية.....

احداث

أ. د. شكرية شدهان جوك العكيلي

طالبة الدكتوراه : فاطمة فاضل جوك الحسني

كيفية الاستعداد للولادة الطبيعية؟



الاستعداد بالبحث عن المعلومات مثل قراءة الكتب والمشورات، وتصفح المواقع الإلكترونية الموثوق بها، وخاصة بالولادة.



إيجاد مرافق للأم لمساكنتها أثناء الولادة (مثل الأم، أو الزوج، أو الأخت، أو صديقة، أو الدولا (رفيقة الولادة).



أخذ قسط كافٍ من الراحة.



حضور الدورات التثقيفية عن الحمل والولادة الطبيعية.



التفكير بمكان الولادة.



لتأقلم الأم الطبيب أو القبيلة عن رعايتها بشأن طريقة الولادة (مثل وضعية الولادة، طريقة التعامل مع الألم).

الطلق الطبيعي

- يحصل بانتظام ويزداد حدة مع الوقت
- الانقباضات تزداد بالوقت والشدة
- الانقباضات لا تتغير مع تغيير الوضعية
- الأوجاع تكون من الخلف إلى الأمام
- الشعور بضغط شديد في منطقة الحوض مصاحب بشعور بعدم الراحة



إجراءات للتخفيف من حدة آلام الطلق الطبيعي

- الاسترخاء والراحة مع النوم من أجل توفير الطاقة
- حافظي على نشاطك بممارسة التمارين الرياضية فهي تسهل الولادة وتقلل من حدوث آلام في الظهر
- مارسي تمارين تقوية قاع الحوض

الخلاصة

الخلفية: تساهم المفاهيم الخاطئة المتعلقة بنتائج صحة الأم بعد الولادة الطبيعية والولادة القيصرية في زيادة انتشار الولادة القيصرية على الرغم من ان المراضة والوفيات عند الأمهات بسبب الولادات القيصرية اكثر مقارنةً بالولادة الطبيعية. وتهدف الدراسة لتحديد مضاعفات طرائق الولادة (العملية القيصرية و الولادة الطبيعية) الناتجة للأم والوليد في مستشفى الزهراء التعليمي للنسائية و الاطفال في مدينة النجف الأشرف. *المنهجية:* أجريت دراسة وصفية وتحليلية خلال وبعد (الولادة الطبيعية والولادة القيصرية) للنساء اللواتي يراجعن مستشفى الزهراء التعليمي للنسائية والأطفال في النجف الاشرف. تم جمع البيانات باستخدام الاستبيان. خلال الفترة من ١٥ حزيران إلى ٢٨ كانون الاول ٢٠٢١. *النتائج:* أظهرت النتائج أن المضاعفات الناتجة للأم والطفل من الولادة القيصرية أعلى من تلك الناتجة عن الولادة المهبلية. فيما يتعلق بالخصائص الديموغرافية والإنجابية للأمهات ، في حالة الولادة المهبلية. فيما يخص البيانات الديموغرافية وعلاقتها بالمضاعفات الناتجة للأم والطفل، ففي حالة الولادة الطبيعية أظهرت النتائج ان هنالك علاقة ذات دلالة احصائية بين عمر الأم والمضاعفات الناتجة عن الولادة الطبيعية للأم، بينما عمر الأم و الفاصل الزمني بين حالات الحمل كان له علاقة ذات دلالة احصائية مع المضاعفات الناتجة للطفل. بينما في حالة الولادة القيصرية كان هنالك علاقة ذات دلالة إحصائية بين المضاعفات الناتجة عن الولادة القيصرية و مؤشر كتلة جسم (قبل الحمل وبعد الولادة)، عمر، سكن و مهنة الأم. ايضا مؤشر كتلة الجسم للأم بعد الولادة وعدد الولادات السابقة كان له علاقة ذات دلالة احصائية مع المضاعفات الناتجة للطفل. الاستنتاجات: ان المضاعفات الناتجة عن الولادة القيصرية في هذه الدراسة أعلى مقارنة مع تلك الناتجة عن الولادة الطبيعية ، وان عمر الام و مؤشر كتلة الجسم قبل الحمل و بعد الولادة له عالقة بمضاعفات الام وحديثي الولادة الناتجة عن الولادة الطبيعية والولادة القيصرية. التوصيات: استخدام أنواع مختلفة من وسائل الاعلام لتحفيز الوعي العام حول مضاعفات العملية القيصرية خاصة في المراكز الصحية و يجب تشجيع النساء الحوامل على القيام بزيارة منتظمة إلى المركز الصحية للحصول على المعلومات حول الولادة الطبيعية والقيصرية و يجب على الممرضة أن تلعب دورا في ذلك.



وزارة التعليم العالي والبحث العلمي

جامعة بابل

كلية التمريض

العلاقة بين طرائق الولادة ومضاعفاتها الناتجة للام والوليد
في مستشفى الزهراء التعليمي للنسائية والاطفال في مدينة
النجف الاشرف

رسالة مقدمة الى

فرع تمريض صحة الام والوليد في كلية التمريض | جامعة
بابل

تقدّمت بها

فاطمة فاضل جواد الحسن اوي

وهي جزءا من متطلبات نيل شهادة الدكتوراه فلسفة علوم في
التمريض

بإشراف

أ. د. شكرية شدهان جواد العكيلي