MATERNAL AND PERINATAL OUTCOMES OF CESAREAN DELIVERY DURING FIRST-STAGE AND SECOND STAGE OF LABOR AT JIMMA MEDICAL CENTRE, JIMMA, SOUTHWEST ETHIOPIA.

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ABSTRACT

BACKGROUND Cesarean delivery can be done in first stage of labor or second stage of labor. About 25% of primary cesarean deliveries are reported to be done in the second stage of labor. Maternal and perinatal outcome following cesarean delivery can be affected by different factors. Different studies have shown that both maternal and perinatal morbidity is higher when cesarean delivery is done in second stage of labor.

OBJECTIVE: To compare maternal and neonatal outcomes when Cesarean Delivery is performed in second stage of labor with Cesarean Delivery done in first stage of labor.

METHODS: A prospective cross-sectional comparative study was conducted from December 2020 to August 2021 in Jimma Medical Center, Obstetrics and Gynecology department on women who underwent first stage and second stage Cesarean Delivery. Total of 339 cases, 85-second stage and 254 first stage cesarean section cases were included in the study.

RESULTS

During the study period, there were 3,879 deliveries at JMC, and there were 1400 C/D making the hospital delivery rate 36.1%. Women in the second stage group had longer duration of surgery (44.89 min Vs 52.88 min) and operation took more than 50 minutes for 37(43.5%) of the second stage and 63(24.8%) of first stage group (p – 0.01, 95% CI 2.34(1.4-3.9). The mean blood loss was greater in the second stage group (618.82ml Vs473.82ml). The risk of blood loss more than 1000ml was higher in the second stage group (11.6% Vs 1.6%), p - 0.001, 95% CI 7.5(2.4-23.2). Women operated in second stage of labor had longer hospital stay (5.31 days Vs 3.70 days) than the first stage group: 33 mothers (38.8%) of the second stage and 33(13.0%) of the first stage group stayed more than four days in the hospital (p <0.001, 3.7 (2.2-6.3)). Ten women of the second stage group (11.8%) required blood transfusion while only two of the first stage C/D group (0.7%) were transfused (p- 0.03, 95% CI 14.9(3.3-66.8). Puerperal Sepsis was more common in the second stage group ([8(3.15%) Vs 12(14.12&]) when compared with first stage group. NICU admission rate was higher for C/D in second stage of labor compared to the first stage C/D. Thirteen neonates (15.3%) of the second stage group and Eight (3.1%) of the first stage group had Fifth minute APGAR score <7 (p-0.003, 95% CI 4.9(2.1-11.3). Eight (16.33%) of neonates delivered to the second stage group and Eight (3.15%) of the first stage group ended up in ENND.

CONCLUSION & RECOMMENDATION: The result of this study suggests that women undergoing cesarean section in the second stage of labor had increased maternal morbidities like blood loss, blood transfusion and prolonged hospital stay, Fifth minute APGAR Score < 7 was

more common in the second stage C/D group, but the rate of NICU admission and ENND is not significantly different between the two groups.

Key words

First stage cesarean Delivery, second stage cesarean delivery, Maternal Outcome, Neonatal Outcome, Jimma Medical Centre.

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First of all I am grateful to Jimma University and Department of Obstetrics and Gynecology which allowed me to conduct this study. My gratitude also goes to study participants who were willing to respond to the interview and allowed me to review their folders.

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Acronyms

ACOG……American College of Obstetricians And Gynecologists

APGAR – Appearance, Pulse rate, Grimace, Activity, Reflex

ANC ……..Antenatal Care

C/D……Cesarean Delivery

COVID 19… Corona Virus Disease

EONS……Early Onset Neonatal Sepsis

ENND……Early Neonatal Death

FSOL…….First Stage Of Labor

GA……Gestational Age

GC…….Gregorian calendar

Hct ……. Hematocrit

JMC……Jimma Medical Centre

LNMP……Last Normal Menstrual Period

LUS C/D……Lower Uterine Segment Cesarean Delivery

NRFHRP……Nonreassuring Fetal Heart Rate Pattern

NICU…….Neonatal Intensive Care Unit

ObGyn…….Obstetrics and Gynecology

OPD……Outpatient Department

SSOL…….Second Stage Of Labor

WHO……World Health Organization

CHAPTER 1: INTRODUCTION

1.1. Background

Cesarean delivery (C/D) is defined as the delivery of a fetus, placenta and fetal membranes through surgical incisions made through the abdominal wall (laparotomy) and the uterine wall (hysterectomy) after 28 weeks of gestation. C/D is performed when safe vaginal delivery is either not feasible (absolute) or would impose undue risks on the life of the mother or the fetus(relative). When C/D is done in labor on due to any complications that necessitate immediate delivery, the cesarean is called Emergency C/D. Planned C/D before the onset of labor is elective C/D (1).

Cesarean Delivery is the most common procedure done worldwide. Since 1985, the international healthcare community has considered the ideal rate for cesarean sections to be between 10% and 15%. Since then, cesarean sections have become increasingly common in both developed and developing countries. Rates vary between countries and health facilities. Variable rates of C/D are reported between and within countries in developed and developing countries. The proportion of Cesarean birth is 21.1% in developed and only 2% in least developed countries. The Ethiopian national cesarean section rate is about 2%, but the rate varies widely among administrative regions, suggesting unequal access. C/Ds were highest among urban mothers, first births, births to women with higher education, and births to women from the richest quintile of household wealth (2).

Cesarean Delivery can be done in first stage of labor which is defined as C/D done from regular uterine contraction to less than full cervical dilatation, and in second stage of labor which is the time elapsed from full dilatation of cervix to expulsion of the fetus. One fourth of the primary C/D is reported to be done in second stage of labor (SSOL) and are more complicated compared to the one performed in FSOL. When compared with first stage C/D, second stage C/D demonstrated undesirable outcomes like perinatal mortality, postpartum Hemorrhage, puerperal febrile morbidity, neonatal seizures, as well as outcomes of less certain significance relating to acid base status of the neonate (3–5).

Studies have shown that timely second stage C/D reduces neonatal trauma. Whether second stage C/D reduces birth asphyxia is debatable. For the mother second stage C/D is associated with increased risk of surgical injury including hemorrhage, bladder injury, different forms of incision extensions, longer surgery time and hospital stay, and incidence of postoperative fever.

Therefore, C/D undertaken in second stage of labor is not without risks as compared to first stage C/D (6).

The risk of second stage C/D is increased when fetal malposition at full cervical dilatation by nearly two folds for Occiput transverse, and more than four fold for occiput posterior position. Failure of presenting part to descend may be due to inadequate or incoordinate uterine contraction, malposition, and malpresentation of the body or cephalopelvic disproportion. The cause of this failure to progress should be diagnosed and appropriately treated(7).

Prolonged SSOL imposes a critical dilemma upon the obstetrician. On one hand, it is believed that a prolonged second stage is associated with increased maternal and fetal risks, and frequently leads to mental and physical fatigue of mother, midwife and obstetrician. On the other hand, limiting the duration of second stage inevitably leads to higher incidence of operative vaginal deliveries or C/D. Obstetrical dogma still maintains that the normal duration of the second stage of labor may not exceed 2 hours. This limit appears too arbitrary, however, because there is still a substantial lack of data on perinatal outcome in relation to the duration of second stage. Furthermore, the concept of 'normal duration of second stage' has greatly changed in obstetrical history, which has left unclear what upper limit should be considered optimal (4).

C/D in late labor or at full dilatation with reduced liquor and engaged fetal head is more difficult procedure and carries a higher risk of complications for both the mother and neonate. This is reflected in a high rate of extension of the uterine incision - a rate up to 35% as been reported. The extensions occur due excessive manipulation that may be required to deliver the fetal head when the lower uterine segment is already thin, edematous and overstretched. This results in higher rates of major obstetrical hemorrhage, injury to uterine vessels, trauma to the urinary tract and increased hospital stay. The risks for the fetus include difficulty in delivering the head, leading to delay between uterine incision and delivery time in an already compromised fetus, and direct fetal trauma resulting from attempts at extracting a deeply engaged head from the pelvis, such as fractures, cephalhematoma and subgaleal hematoma (8).

1.2. Statement of the problem

Maternal and perinatal outcome is affected by different factors among women who give birth by Cesarean Delivery. Cesarean section at full cervical dilatation with an impacted fetal head can be technically difficult and is associated with increased trauma to the lower uterine segment and adjacent structures, as well as increased hemorrhage and infection(3,8,9).

When compared with cesarean deliveries in the first stage of labor, cesarean deliveries in the second stage have been associated with longer surgery time, increased postoperative fever, maternal intra operative trauma and composite maternal morbidity. Neonatal complications are also more common with second stage cesarean deliveries when compared with first stage cesarean(10,11).

Globally there are many studies done to compare both maternal and perinatal outcomes when the cesarean section is done in second stage and first stage of labor. But in Ethiopia, and specifically in JMC there is no such study is done yet. To prevent complications associated with second stage C/D we have to avoid the procedure in second stage of labor or we have to use possible techniques and experienced surgeon specifically for C/D in second stage. The assessment of these obstetric outcomes could help us see our present practice towards management of second stage cesarean delivery and forward recommendations based on the study results.

1.3 Significance of the study

Although there are several studies done globally comparing fetomaternal outcomes when C/D is done in the 1st stage and second stage of labor, few such study is conducted in Ethiopia.

There is no comparative study on maternal and perinatal outcome in women with first and second stage C/D in the study area.

This study will review the management approach women with second stage C/D. Additionally, the study will provide further information regarding fetomaternal outcome of second stage C/D and associated factors and the results of the study helps other researchers for studies to be conducted in the future. The assessment of these obstetric outcomes could help to see present practice and forward recommendations based on study result.

In summary, the purpose of this study is to know common indications of first and second stage C/D and to study second stage of C/D in comparison to first stage C/D if maternal and perinatal morbidity and mortality is more common in second stage C/D.

CHAPTER TWO: LITERATURE REVIEW

2.1. Overview of literature review

There has been considerable debates on duration of second stage of labor in recent years. Historically SSOL was limited to less than two hours. Recently most authors have extended the duration of second stage to 3 hours because most nulliparous women who underwent epidural anesthesia delivered within 3 hours of second stage in comparison with 2 hours in those without regional anesthesia. More importantly, the extension of time given to SSOL has been shown to increase the overall rates of vaginal delivery without adversely affecting neonatal morbidity. However maternal morbidities are increased and include operative deliveries, anal sphincter tears, postpartum hemorrhage and emergency C/D (12).

Most report on second stage C/D originate in well-resourced countries and have led the Royal College of Obstetricians and Gynecologists recommending the presence of consultant obstetrician whenever in Under-resourced countries C/D is performed by medical doctors of varying experience at different levels of health care. Hospitals are staffed by Medical officers, Community service doctors, and General practitioners. There are no specialist obstetricians and this hospitals are unlikely to be staffed by registrars in training (12,13)

Retrospective study of all C/D at a single, university-affiliated Bnai-Zion Medical Center, Haifa, Israel, between January 2010 and December 2014, was conducted on term, singleton pregnancies with cephalic presentation. Maternal outcomes of second stage C/D were compared to those of first-stage C/D. The primary outcome was defined as estimated blood loss >1000ml. Overall, 1004 mothers were included out of which 290 (29%) had a second-stage C/D and 714 (71%) had a first-stage C/D. Women in the second stage C/D group had a higher nulliparity and hypertensive disorders rates and a lower rate of previous C/D. Second stage C/D was associated with more than double the rate of estimated blood loss >1000ml (9.7% versus 3.8%, $p<.001$), and more prone to unintentional uterine incision extension, uterine atony, hemoglobin decrease >2g/l and antibiotic treatment for suspected endometritis. In a multivariable logistic regression model, second-stage C/D was found to be independently associated with unintentional uterine incision extension (OR 6.8, 95% CI 4.1–11.2), uterine atony (OR 3.3, 95% CI 1.4–8.0) and antibiotic treatment for suspected endometritis (OR 2.6, 95% CI 1.4–5.1), but not with excessive blood loss (OR 1.5, 95% CI 0.8–2.8). Additionally, failed assisted vaginal delivery prior to second stage CS was not associated with a higher rate of complications. Second-stage CS is associated with

higher rates of adverse maternal outcomes, mainly unintentional uterine incision extension, uterine atony, and suspected endometritis(14).

Between the months of May and December 2007 at a district hospital in Durban, South Africa, a chart review of all C/Ds was performed and a total of 1257 C/Ds were available for analysis, of which 640 were electives and 617 emergency C/Ds. The overall C/D rate was 27.2%. There were 53 second stage C/Ds. The rate of second-stage emergency C/D was 8.6%. In 32 (60.4%) of the 53 patients, the second stage lasted ≤ 2 hours and for the remaining 21 it exceeded two hours. Neonatal complications in this study were similar to those found in a control group of emergency first-stage C/Ds. Estimated blood loss, blood-stained urine, postoperative fever and operative times were, however, greater in the second-stage C/D group. However, these maternal complications did not affect eventual clinical outcomes. Second-stage C/Ds performed in a district hospital are associated with increased maternal complication rates but not with neonatal complications (12).

In a 3 year observational study conducted at the Bakirkoy Women's and Children's Teaching Hospital Istanbul, Turkey, from June 2008 to July 2011, the second stage C/D had a 4.25-fold greater risk of maternal morbidity than those who underwent C/D in the first stage of labor (25.5% vs 6%). Apgar scores of 3 at 5 minute were significantly more frequent (3.3%) in newborns of mothers who were operated on in the second stage of labor compared with those operate during the first stage (0.4%). The rate of fetal injury during delivery (2.3% vs 0.1%), admission to the neonatal intensive care unit (5.0% vs 0.8%), septicaemia (3.3% vs 0.4%) and neonatal death (1.3% vs 0.003%) were all more common in women who underwent C/D in the second stage of labor (15).

An observational cross-sectional -hospital based study was carried out in Ibrahim Malik Hospital in Khartoum State, Sudan from October 2015 to October 2016 in which Six hundred women were enrolled(200 women underwent second stage C/D for variable indications, while 400 women underwent first stage cesarean section. Women who underwent C/D in the second stage of labor had greater risk of maternal morbidity than those who underwent C/D in the first stage of labor. The rate of bleeding >1000 ml, extension of the uterine incision, bladder injury .and perinatal morbidity was also higher among those underwent second stage C/D. The rate of fetal injury during delivery, fresh stillbirth, admission to the neonatal intensive care unit, neonatal

sepsis and early neo- natal death(ENND) are more in those delivered by C/D at second stage. Intra operative bleeding, adhesion, bladder injury, caesarian hysterectomy, perinatal asphyxia, Fresh Still Birth, birth trauma, NICU admission and low Apgar score were more related to 2nd stage C/D (16)

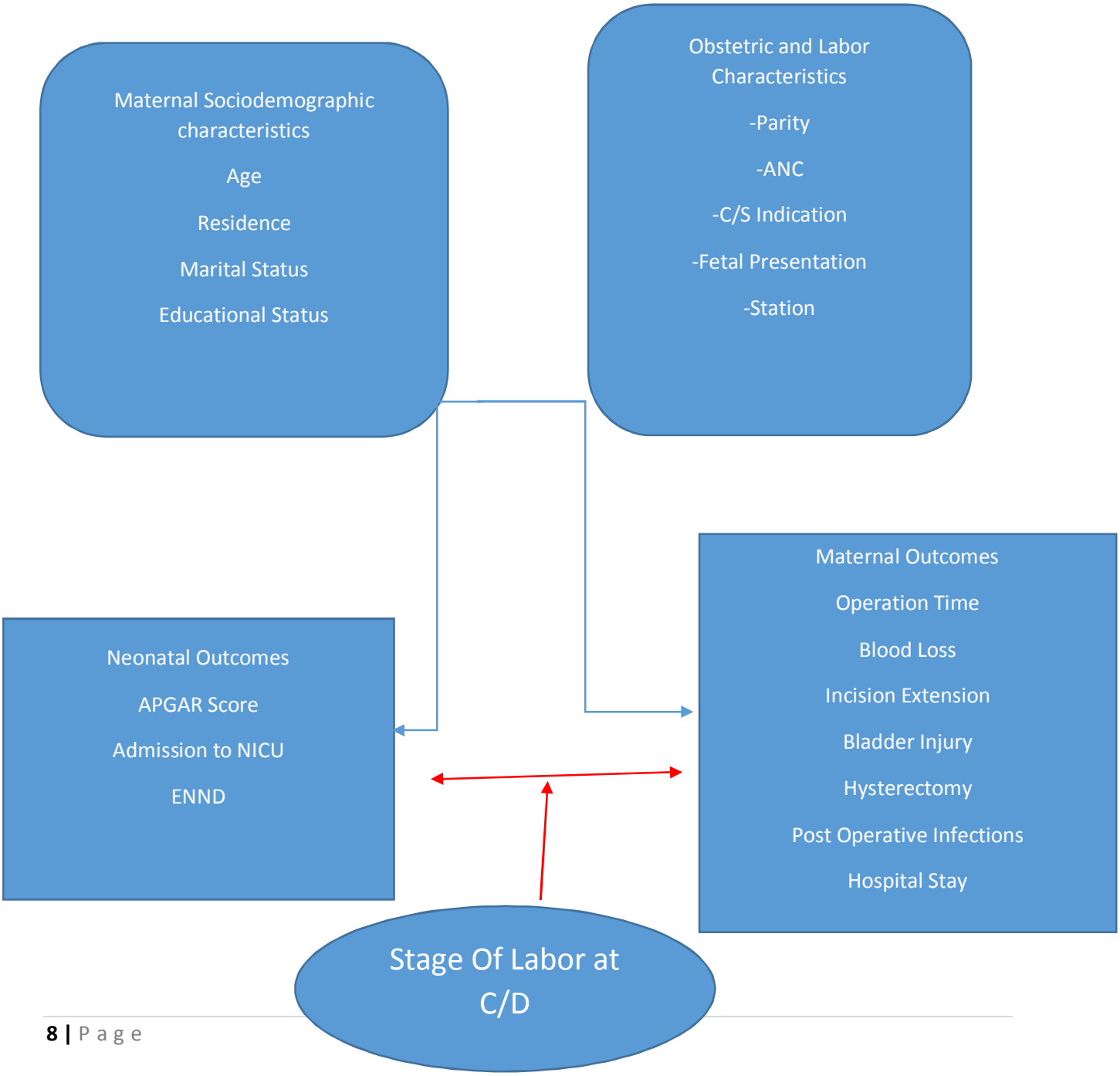
A prospective observational study of primary cesarean deliveries in China at 13 university centers was conducted between January 1, 1999, and December 31, 2000. A total of 11,981 C/Ds were available for analysis: 9,265 were performed in the first stage and 2,716 in the second stage. C/Ds performed in the second stage were associated with longer operative times, epidural analgesia, chorioamnionitis, and higher birth weight. The maternal composite index was slightly increased in women undergoing C/D in the second stage of labor, primarily due to uterine atony, uterine incision extension, and incidental cystotomy. This difference was significant after multivariable analysis (odds ratio 1.21, 95% confidence interval 1.07–1.37). After multivariable analysis, the neonatal composite did not differ significantly between groups (11).

In another study done in the United Kingdom,in 2011 singleton term pregnancies who had a C/D in the first stage of labor(FSOL) and those who had second stage C/D: of 627 women, 81% had C/D IN 1ST stage and 19% had C/D in second stage of labor. Women undergoing C/D at full cervical dilatation were 1.9 times more likely to have augmented labor and 2.8 times more likely to have epidural anaesthesia in labor than those in 1st stage. Compared with C/D in FSOL, women undergoing C/D in SSOL were 4.6 times more likely to have composite intraoperative complications, 3.1 times more likely to have blood loss greater than 1,000ml, and 2.9 times more likely to have blood transfusion. The risk of neonatal morbidity was higher in first stage cesareans when performed for presumed fetal compromise(66.3 vs 26.3%, p = 0.002), and lower when they were performed for failure to progress(18.4% Vs 42%, P = 0.02) C/D in second stage of labor is associated with a higher risk of maternal but not perinatal morbidity (17).

An institution based comparative cross-sectional study was conducted in three teaching hospitals in Addis Ababa, Ethiopia. A total of 3238 deliveries were attended in the three teaching hospitals during the study period making the C/D rate of 30.1%. Three hundred eighty-eight emergency C/D cases were enrolled the proportion of 97 (10.9%) second stage and 291 (89.1%) first stage C/D. Significant difference observed in the mean blood loss between the second stage and first stage C/D, 552 ml vs. 410 ml, (OR 30.13, 95% CI 16.25-55.85). Similarly, the women in the second stage C/D had longer mean hospital stay and mean longer operation time than first stage C/D. Five cesarean hysterectomies were done for postpartum haemorrhage and four cases

of extension of incision site were encountered following second stage C/D compared to none in the first stage C/D. Though no maternal death or significant perinatal complications were encountered, women with second stage C/D had significant maternal morbidities than first stage cesarean delivery (10).

2.2 Conceptual Framework



CHAPTER THREE: OBJECTIVES

3.1 General Objectives

- To compare maternal and perinatal outcomes when cesarean delivery is done in second stage of labor and first stage of labor in JMC, Southwest Ethiopia from December 2020 to August 2021.

3.2 Specific Objectives

- To Determine rate and common indications of first stage and second stage C/D in JMC, Southwest Ethiopia from December 2020 to August 2021.
- To determine maternal outcomes of first stage and second stage C/D in JMC, Southwest Ethiopia from December 2020 to August 2021.
- To determine perinatal outcomes of first stage and second stage C/D in JMC, Southwest Ethiopia from December 2020 to August 2021.

CHAPTER FOUR: MATERIALS AND METHODS.

4.1 Study Area

The study was conducted in Jimma Medical Centre (JMC) which is found in Jimma city, Southwest Ethiopia 353 km from Addis Ababa. Jimma University is one of the higher institutions in Ethiopia. The main campus is situated to the east of the town at about 3kms from the down town, Jimma Municipality and 4kms before reaching to King Abajifar Palace. Jimma Medical Centre (JMC) which is part of Jima University (JU), established in 1930, is located in the main campus. It is a referral hospital which provides services for approximately 9,000 in patient and 80,000 outpatient attendances a year with a very wide catchment population of over 15 million people in southwest Ethiopia.

The Centre provides almost all major types of medical care and it has a total of 659 beds of which 52 are found in the maternity ward. The first and second stage rooms of the labor ward have 11 and 5 beds, respectively. The Hospital also has two maternity OR tables on which both elective and emergency obstetric operations are performed. The labor and maternity wards are ran by midwives, medical interns, resident physicians of obstetrics and gynecology, and obstetrics and gynecology consultants. Monthly, on average, 369 and 168 mothers deliver vaginally and by C/D respectively. The hospital serves as a referral hospital for the southwestern part of the country and most of the laboring mothers come from rural areas.

4.2 Study Period

The study was conducted from December 2020 to August 2021 GC in JMC on women for whom C/D is done in first stage and second stage of labor.

4.3. Study Design

Comparative cross-sectional study was used to compare maternal and perinatal outcomes in second stage versus first stage C/D.

4.4 Source Population

All deliveries at JMC in study period

4.5 Study Population

All first stage and second stage C/D conducted in JMC in specified time period and registered in on Operation Theatre Log Book

4.6. Inclusion and Exclusion Criteria

Inclusion Criteria

- All mothers delivered at term and beyond by C/D during the study period

Exclusion Criteria

- All mother who had previous CD, twin pregnancy, IUFD, APH

4.7 Sample size and sampling technique

Sample size was calculated using the Epi info statcalc for population proportion, level of confidence of 95% and 80% power is used. Taking EBL>500ml as a primary outcome of interest and prevalence of 38.8% and 58.8% in 1st stage and second stage group respectively, which will be 169 cases for each group. Considering second stage and first stage C/D in a ratio of 1:3, 85 and 254 respectively and a total of 339 women were studied during the study period. For every second stage cesarean delivery fulfilling inclusion criteria, the next three first stage cesarean delivery fulfilling inclusion criteria were selected as controls for the study(9,14,18)

4.8 Data Collection Methods

4.8.1 Data Collection Instrument

All women with second stage of labor fulfilling the inclusion criteria were identified, and those with first stage of labor were taken as control. Data was collected using questionnaire and checklist that contains sociodemographic characteristics of mothers, clinical presentations, laboratory data and maternal and fetal outcome parameters and associated factors. The structured questionnaire was filled after the women delivered and before the woman or neonate was discharged from the hospital.

4.8.2 Data Collectors

Data collectors were residents of obstetrics and gynecology and medical who were trained oriented on the study objective and data collection tools with a close supervision from the principal investigator. Observation of senior resident during the surgery was also included.

4.8.3. Data Collection Procedure

Data was gathered by reviewing charts of the mothers and supplemented by interviewing the subjects. Intraoperative blood loss was estimated by the number of gauzes used; well soaked one big gauze is counted as 120ml of blood while soaked small gauze is counted as 20ml of blood, which will be added and said to be excessive if it is more than or equal to 1000 ml. Gestational age was calculated using either reliable LNMP, early ultrasound or Ballard score; and those having GA of 37 weeks or beyond are included in the study. Change in Hematocrit was calculated by the formula – (Preoperative Hct – Postoperative Hct) /Preoperative Hct *100. The patients were followed throughout their stay in the hospital to assess presence and development of complications. The neonates admitted to NICU were followed for possible complications up to discharge or 7^{th} day of life. To prevent the spread of COVID 19, all the data collectors were encouraged to persistently use face mask and alcohol-based hand rub throughout the data collection.

4.9 Data Quality Control

Data collection tool was initially tested on 20 clients and necessary modification was made. The principal investigator supervised the data collectors during data collection. The collected data was reviewed and checked for completeness, entered into Epi data V3.1, cleaned, coded and exported to SPSS for analysis.

4.10 Analysis

Data was entered to Epi data v3.1, checked for completeness, cleaned, coded and exported to to SPSS. Statistical data analysis was conducted using SPSS v.23. Frequency distribution tables were used to describe data, and measurements of central tendency like mean and median were used when appropriate. Categorical data were compared using Chi square or Fischer's exact test when appropriate. Relative risk was calculated and P value less than 0.05 was taken as statistically significant.

4.11. Variables

Dependent Variables

1. Maternal Outcomes – Extension of uterine incisions, bladder injury, infection, blood transfusion, hysterectomy, change in hematocrit, Length of Hospital Stay
2. Fetal Outcomes – Birth Weight, 1st & 5th minute APGAR score, Fetal Injury, Admission to NICU, Early Neonatal Death

Independent Variables

1. Maternal Age
2. Parity
3. Address
4. Antenatal care
5. Station of presenting part at time of cesarean delivery
6. Gestational Ages
7. Birth weight

4.12 Ethical Clearance

Ethical clearance was obtained from College of Public Health and Medical Sciences ethical review committee and permission to conduct the study was obtained and submitted to Chief Clinical Director of JMC. Verbal consent was taken from the study subjects and the right of the respondents stop the interview anytime or not responding to certain questions was respected. Additionally, names of participants were not mentioned in the study and information obtained from patients is held confidentially. Any information which will negatively affect the hospital, the staffs and the clients will not be released for any third party.

4.13 Plan for Dissemination and Utilization of Results

At the end of research report, the findings will be submitted to concerned authorities and if needed will be discussed with the head of departments and facilities as well as interested staffs. The result will also be published on national and international journals.

4.14 Operational Definitions

Booked – At least one antenatal visit at any of the health facility

GA – Gestational Age determined from either LNMP, early ultrasound, or ballard Score

Term – Gestational age beyond 37 weeks as calculated by either of LNMP, early Ultrasound, or Ballard Score

Urban – place of residence from administrative capitals of zones or weredas or capital cities of regions.

Rural – Place of residence, not urban

Complications – Any complication that happened before discharge related to the current pregnancy

NRFHRP- Abnormal fetal heart rate; using intermittent auscultations or continuous electronic monitoring

Operation time – time elapsed from skin incision to skin closure.

Low APGAR Score – 5^{th} minute APGAR score less than 7

ENND – death of a newborn within 7 days of life

PPH – hemorrhage following delivery which required intervention of the managing team either medically or surgically

Extension of Uterine incision – any tear on the uterus that required additional layer of repair.

Hospital Stay – the days the mother stayed in the hospital from the day C/D was done until discharge.

CHAPTER FIVE: RESULTS

5.1 Sociodemographic characteristics

During the study period, 3,879 deliveries were attended at JMC, Jimma Southwest Ethiopia, out of which 1400 deliveries were conducted by Cesarean Delivery making cesarean delivery rate 36.1%. Total of 339 women were included in this study; 254 (74.9%) of the cesarean deliveries were performed during the first stage of labor, and 85 (24.1%) had cesarean delivery done at second stage of labor.

Majority (37.4%) of the women in the first stage group are found in the age category of 25-29 years while 43.5% of the second stage group are in 19-24years. The mean age in the first stage C/D group is 26.33 years while that of the second stage C/D is 25.09 years. Majority of women are from urban area (64.2% of first stage and 51.8% of second stage group). Most (95.3%) of the women in both groups are married. Majority (76.7% Vs 69.4%) of the women in both groups can at least read and write their first language while about quarter (23.2%) of the mothers in the first stage C/D group and 30.6% of the second stage group can't read and write. Majority of the women are Muslims (62.6% and 69.4% in first stage and second stage group respectively) and Oromo by Ethnicity (79.5 Vs 75.3%) in first stage and second stage groups respectively. See Table 1.

Table 1. Maternal Sociodemographic Distribution of Women who underwent C/D at JMC from December 2020 to August 2021.

Maternal Sociodemographic Characteristics		STAGE OF LABOR AT C/D				*P value*
		FSOL(n=254)		SSOL(n = 85)		
		Frequency	Percent	Frequency	Percent	
Age	<18	8	3.1	5	5.9	0.3
	19-24	82	32.3	37	43.5	
	25-29	95	37.4	30	35.3	
	30-34	43	16.9	9	10.6	
	≥35	26	10.2	4	4.7	
	Mean ± SD	26.33 ± 5.17		25.09 ± 4.57		
Residence Area	Urban	163	64.2	44	51.8	0.4
	Rural	91	35.8	41	48.2	
Marital Status	Single	5	2.0	3	3.5	0.7
	Married	242	95.3	81	95.3	
	Divorced	6	2.4	1	1.2	
	Widowed	1	.4	-	-	
Educational Status	Can't read & write	59	23.2	26	30.6	0.55
	Read & write only	76	29.9	25	29.4	
	Secondary education	60	23.6	18	21.2	

	Beyond secondary	59	23.2	16	18.8	
Religion	Muslim	159	62.6	59	69.4	0.193
	Orthodox	66	26.0	14	16.5	
	Protestant	29	11.4	12	14.1	

5.2. Maternal Obstetric Characteristics

Majority of women in both groups had at least one ANC follow up (97.2% of first stage C/D group and 95.3% of the second stage group). From among women who had ANC, majority (36.2%) of the first stage group were booked at JMC while more than half (52.9%) of the second stage group were booked at Health Centers. Majority (51.8% of second stage group and 43.7% of the first stage group were primi gravida while the remaining were multigravida. Considering parity, 46.5% of the first stage group and 54.1% of the second stage C/D group were primiparous while the rest were multiparous. Onset of labor was spontaneous in majority of the cases in both groups (95.3% and 88.6% in second stage and first stage respectively). Augmentation was carried out before C/D in 11 (4.3%) of women in the first stage C/D group while none of the second stage group were augmented.

The common fetal presentation was Vertex in both groups (89.4% for first stage and 80% for second stage). Most of the cesarean deliveries were performed at station -1 (41.7%) for first stage group and at station 0(58.8%) for the second stage group. NRFHRP was the most common (54.3%) indication for cesarean delivery in the first stage group followed by CPD (14.2%) and Arrest/Protraction Disorder (11%) while CPD, Obstructed Labor and NRFHRP are the first three common indications of C/D in second stage of labor accounting for 42.4%, 31.8% and 17.6% respectively. See tables 2&3

Table 2 comparison of Obstetric characteristics of Among Women who underwent C/D at JMC from December 2020 to August 2021.

Maternal Obstetric Characteristics		STAGE OF LABOR AT C/D				P value
		FSOL(n=254)		SSOL(n = 85)		
		Frequency	Percent	Frequency	Percent	
ANC	Booked	247	97.2	81	95.3	0.383
	Un booked	7	2.8	4	4.7	
Place Of ANC if Booked	JMC	92	36.2	19	22.4	0.33
	Health Centre	89	35.0	45	52.9	
	Other Hospital	34	13.4	11	12.9	
	Private Clinic	32	12.6	6	7.1	
Gravidity	I	110	43.7	44	51.8	0.430
	II-IV	111	43.3	32	37.6	
	≥V	33	13	9	10.6	
	I	118	46.5	46	54.1	

Parity	II-IV	106	41.7	30	35.3	0.40
	≥V	30	11.8	9	10.6	
Onset of labor	Spontaneous	225	88.6	81	95.3	0.08
	Induced	29	11.4	4	4.7	
Labor Augmented	Yes	11	4.3	0	0	0.39
	No	243	95.7	85	100	
Fetal Presentation	Vertex	227	89.4	68	80.0	0.06
	Breech	17	6.7	3	3.5	
	Shoulder	2	.8	2	2.4	
	Face	5	2.0	1	1.2	
	Brow	1	.4	5	5.9	
	Parietal bone	2	.8	6	7.1	
Station of Presenting Part at time of Decision for C/D	-2	83	32.7	0	0	0.71
	-1	106	41.7	10	11.7	
	0	46	18.1	49	57.6	
	+1	19	7.5	21	24.7	
	+2	0	0	5	5.9	

Table 3 Frequency and percentage of indications of Cesarean Delivery among women who Underwent C/D at JMC from December 2020 to August 2021.

Indication of Cesarean Delivery	Stage of Labor at time of Decision for C/D				P value
	FSOL		SSOL		
	Freq.	%	Freq.	%	
NRFHRP	137	53.9	16	18.8	0.071
Arrest/protracted Cervical dilatation	29	11.4		-	-
Arrest of descent in SSOL	-	-	3	3.5	-
CPD	37	14.6	36	42.4	0.16
Obstructed labor	6	2.4	26	30.6	0.06
Malpresentation	16	6.3	4	4.7	0.59
MSAF	14	5.5	-	-	
Others	15	5.9	-	-	

5.3. Maternal Outcomes

The mean of total operation time in the second stage group was 52.88 ± 21.4 minutes and 44.89 ± 11.93 minutes for first stage C/D group. The surgery took more than 50 minutes for 37(43.5%) of the second stage and 63(24.8%) of respondents in the first stage C/D group (p-0.01 95% CI 2.34(1.4-3.9). The mean intraoperative blood loss was 616.82ml for the second stage C/D group and 472.82ml for the first stage C/D group .Majority of women who lost more than 1000ml of blood intraoperatively belong to the second stage group (12.94% Vs 1.18%). (p <0.05). Drop in hematocrit by more than 10% is higher in the women who underwent C/D in SSOL when compared with those operated in FSOL (65.9% Vs 29.9%) (p <0.01, 95% CI 2.2(1.7-5.5). See Table 4.

Intraoperatively, three women (3.5%) of women in the second stage group sustained uterine incision extension while only one (0.4%) of woman in the first stage group developed extension. Two (2.4%) of the second stage C/D group sustained iatrogenic bladder injury but no such complication occurred in the other group. PPH was diagnosed clinically in 13(15.3%) of the second stage group and 7(2.8%) of the first stage group. Blood transfusion was required in ten women (11.8%) of the second stage C/D group and two (0.7%) of the first stage C/D group required blood transfusion (p – 0.03, 95% CI 14.9(3.3-66.8). See Table 4.

Postoperatively, women for whom C/D was done in the second stage of labor were more prone to Puerperal sepsis (12(14.1%) Vs 8(3.2%), wound infection (6(7.1%) Vs 1(0.4%). Women for whom C/D was done in second stage of labor stayed more days in the hospital when compared with the first stage group (5.24 ±3.05 days for second stage group Vs 3.71 ± 1.67 days for first stage group). The risk of staying more than 5 days in the hospital is more than three times higher when C/D is done in SSOL than in FSOL (p – 0.002, 95% CI 2.8(2.2-6.3). See Table 4

Table 4. Comparison of Maternal Outcomes among Women Who Underwent First Stage and Second Stage C/D at JMC, Jimma, Ethiopia from December 2020 to August 2021.

Maternal Outcome Variables	Stage of Labor at time of Decision for C/D				RR 95% CI	P value
	FSOL		SSOL			
	Frequency	Percent	Frequency	Percent		
Mean total duration of surgery (min)*	44.89±11.93		52.88±21.40			
Surgery Duration >50minutes	63	24.8	37	43.6	2.34(1.4-3.9)	0.01*
Estimated blood loss (ml)*	473.82±105.73		618.82±224.00			
EBL≥1000ml	4	1.6	10	11.76	7.5(2.4-23.2)	0.001*
Change in hematocrit (%)*	8.39±5.77		14.18±7.97			
Change in Hct >10%	76	29.9	56	65.9	2.2(1.7-5.5)	0.001*
PPH	7	2.8	4	5.3	1.7(0.5-6.7)	0.199
Uterine Incision Extension	1	0.4	3	3.5	8.9(0.9-85.0)	0.837
Bladder Injury	0	0	2	2.4		
Blood Transfusion	2	0.7	10	11.8	14.9(3.3-66.8)	0.03*
Puerperal Sepsis	8	3.2	12	14.1	0.7(0.19-3.18)	0.727

Wound infection	1	0.4	6	7.1	0.167 (0.08-1.59)	0.119
Hospital Stay(days)*	3.7±1.67		5.31±3.04			<0.002*
Hospital stay ≥ 5 days	33	13.0	33	38.8	3.7 (2.2-6.3)	

5.4. Neonatal Outcomes

The mean birth weight of the newborns in the first stage group is 3193.66±504.72gm and 3351.53±436.18gm in the second stage group. Most of the neonates in both groups had normal birth weight, 2500-3999gm (91.8% Vs 68.2%). Out of the neonates delivered by C/D in SSOL, 13(15.3%) had APGAR score <7 while only 8(3.1%) of the first stage group had APGAR score less than 7 (p 0.003, 95% CI 4.9(2.1-11.3). Out of the 77 neonates who required admission to NICU, 49(19.3%) were born in first stage while 28(32.9%) newborns were delivered in second stage of labor (p-0.167). The rate of neonatal death was higher in the second stage C/D group (3.1% in the first stage Vs 9.4% in the second stage C/D group). See Table 5

Table 5. Comparison of Neonatal Outcomes Among Women Who Underwent First Stage And Second Stage C/D At JMC, Jimma, Ethiopia From December 2020 To August 2021.

Neonatal Outcome Variables		Stage of Labor at time of Decision for C/D				RR 95% CI	P value
		FSOL(n=254)		SSOL(n=85)			
		Frequency	Percent	Frequency	Percent		
Birth Weight (gm)	<2500	27	10.6	3	3.5		0.621
	2500-3999	219	86.2	78	91.8		
	±4000	8	3.1	4	4.7		
Mean Birth Weight(gm)		3193.66 ± 504.72		3351.53 ± 435.18			
Mean 5th min APGAR Score		8.78 ± 0.86		8.26 ± 1.25			
5th minute AGPAR <7		8	3.1	13	15.3	4.9(2.1-11.3)	0.003*
NICU Admission		49	19.3	28	32.9	1.7(1.2-2.5)	0.167
Outcome at NICU	ENND	8	3.2	8	9.4	3(1.2-7.7)	0.837
	Alive at Discharge	41	16.1	20	23.5		

CHAPTER 6: DISCUSSION

Cesarean Delivery done in second stage of labor is assumed to be associated with greater maternal and neonatal morbidity and mortality when compared with first stage C/D. A caesarean delivery performed during the second stage of labor is technically difficult because the fetal head engagement in to the maternal pelvis has already been completed, and the maternal uterine muscle is very thin and tense. Additionally, the identification of the bladder and the low segment of the uterus may be difficult, and traumatic to the infant. This study compared maternal and neonatal outcomes in second stage and first stage of labor.

In this study the cesarean delivery rate was 36.1% which is higher than the recent C/D prevalence of Ethiopia which is 29.55%. The figure is also higher than the C/D rate reported from study done in Addis Ababa where C/D accounted for 30% of Hospital delivery in three tertiary hospitals. A study from Sudan also reported C/D rate of 26.1% from a tertiary hospital cross-sectional study. This disparity can be attributed to the fact that JMC is the only referral Hospital in Southwest Ethiopia and most of the cases referred from surrounding hospitals and health centers are complicated cases and need surgical interventions. (3,10,15,19).

Intraoperative characteristics were compared by mean duration of surgery, mean estimated blood loss and change in hematocrit level. In this study mean duration of surgery was significantly higher for second stage group (52.88 $\pm$ 21.4 min for second stage C/D versus 44.89 $\pm$ 11.93 minutes for first stage C/D group) ($P < 0.05$). The surgery took more than 50 minutes for 37(43.5%) of the second stage and 63(24.8%) of respondents in the first stage C/D group (p-0.01). The study done in Addis Ababa and South African study showed similar trend but lower operation time for both groups(37.5 min Vs 31.12 minutes respectively)($P < 0.05$). A study done in New Delhi, India also revealed similar result (43.33±6.46 min Vs 34.23±5.84 min)($p<0.001$) {Formatting Citation}. The longer surgery time in this study may be explained by the fact that intraoperative complications in second stage of labor may explain the difference in this study. Poor surgical technique may also be a factor for this difference. (10,12

The mean estimated blood loss in the second stage C/D group was 618.82ml which is higher than the first stage C/D group (473.82ml). A study from Addis Ababa also reported lower results (552 ml vs. 410 ml). This study also showed that women who were operated in second of labor had more than five times risk of losing more than 1000ml of blood intraoperatively when compared with those operated in first stage of labor (p-0.032, AOR 5.25(2.72-10.14)).. A three-year observation study from Istanbul, Turkey however reported lower rate though second stage C/D delivery group tend to loss more than 1000ml of blood (37.5% Vs 5.4%). This may be explained again by the incidence of intraoperative complication in the second stage group like incision extension which may lead to more bleeding(10,12,20).

In this study blood transfusion was required for 10(11.8%) women of the second stage group while only two (0.7%) of the second stage group required transfusion (p – 0.03). In a study done in United Kingdom, the risk of transfusion was higher (17.3% Vs 5.3%) in the second stage group (p <0.01). Similar result was also reported by a study done in Turkey in which 10% of the second stage group and 0.9% of the first stage group were transfused. In a study done in India risk of blood transfusion is significantly higher (26.7% Vs 3.1%) p < 0.001. But a study done in Israel there was no statistically significant difference risk of transfusion among the two groups (4.6% Vs 3.9%. From study done in Addis Ababa five women were transfused from among the second stage group while none of the first stage group were transfused. This increased risk of transfusion among the second stage in our study can be a reflection of the significance of intraoperative complications and level of blood loss which happened more in the second stage group (9,10,18,20).

The mean length of hospital stay was significantly longer for the second stage group (5.24 $\pm$3.05 days for second stage group Vs 3.71 $\pm$ 1.67 days for first stage group)(p<0.05). This result is significantly lower when compared with a study done in three teaching hospitals in Addis Ababa by Belay et al which reported mean hospital stay of 6 and 9 days for first stage and second stage C/D group respectively, while the South African study reported 4 and 5 days respectively. A Retrospective study done to compare primary C/D in Turkey however reported no difference in the length of hospital stay; both group stayed less than 3 days in hospital. The difference in length of hospital stay in this study can be explained by the fact that patients with obstructed labor and postpartum complications are more common in the second stage group which tend to stay more days in hospital for courses of management. (10,11,15,21,22).

This study showed the risk 5th minute APGAR score <7 and Admission to NICU was higher when C/D was done in second stage of labor than in first stage. The risk of having 5th minutes APGAR score less than seven is about five times likely when the C/D was done in second stage of compared with the first stage(p-0.003, 95% CI 4.9(2.22-13.92). Sinha S et al also reported similar finding where 7.5% and 33.3% of neonates had 5th minute APGAR score less than seven for first stage C/D group and second stage C/D group respectively (p<0.05). A study from Turkey also reported 3.2% and 0.2% in second stage and first stage group respectively (p<0.05). However the study done in three teaching hospitals in Addis Ababa showed no difference in rate of NICU admission, perinatal morbidity and mortality. The indications of C/D in the second stage of labor are CPD and Obstructed labor which might have been there for long before C/D and intrapartum fetal asphyxia might be there (9,10,20).

CHAPTER SEVEN – CONCLUSION AND RECOMMENDATION

7.1. CONCLUSION

In conclusion, C/D rate in this hospital is higher. The result of this study also suggests that women undergoing cesarean section in the second stage of labor had increased maternal morbidities like blood loss, blood transfusion and prolonged hospital stay, The risk of fifth minute APGAR Score < 7 is more common in the second stage C/D group but there is no significant difference in rate of admission to NICU and ENND between the two groups.

7.2. RECOMMENDATION

Further study should be done to know other factors associated with the maternal and perinatal morbidities.

7.3. STRENGTH & LIMITATIONS

7.3.1. **STRENGTH**

The data was collected prospectively which has helped us to gather as much information as possible.

7.3.2. **LIMITATIONS**

The study is done in a tertiary center where different level professional do Cesarean delivery and this factor was not controlled in this specific study

The true incidence of those intraoperative complications are dependent on the documentation of the surgeon; there might be underreporting.

The study is also done in a single institution and the study design being cross sectional might not prevent the recall bias.

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Annex 2 Data Collection Instrument

Questionnaire for the study of Maternal and Perinatal Outcomes Among Women Who Underwent First-Stage Versus Second-Stage Cesarean Delivery at Jimma Medical Centre, Jimma, Southwest Ethiopia; A Prospective Cross Sectional Study.

Information sheet and mothers Consent form (English)

Information sheet

Good morning/afternoon/evening? My name is Dr. Yonas Ayele. I am final year resident of obstetrics and gynecology at of Jimma University. I am conducting a study on maternal and perinatal outcome of first stage and second stage cesarean delivery in JMC for my partial fulfillment of the requirements for the certificate of Specialty in Obstetrics and Gynecology. You are chosen to participate in the study. I want to assure you that all of your answers will be kept secret. I will not keep a record of your name or address. You have the right to stop the interview at any time, or to skip any questions that you don't want to answer.

If you agree to participate in the study, interview will take about 15 minutes to complete. Do you have any questions?

You can contact the principal Investigator on - **0913994973**

Consent form

Do you agree to be interviewed?

Yes ☐ No ☐

May I begin the interview now? To be signed by interviewer: I certify that I have read the above consent procedure to the participant.

Signed: _____

1. **Part 1 Socio demographic status**

1.1 **Age _____ MRN _____ Phone Number_____**

1.3 Ethnicity

a) Oromo b) Amhara c) Kefa d) Gurage e) Tigre f) Others

1.3 Religion

a) Muslim b) Orthodox c) Protestant d) 'Waaqeffataa' e) Others

1.4 Residence Area a) Urban b) Rural

1.5 Educational Status a) Can't Read and write b) read and write only d. secondary education e. beyond secondary education

1.6 Marital status a) single b) married c) divorced d) widowed

1.7 Occupational status a) housewife b) government employee c) student d) farmer e0other (specify)_____

1.8 Monthly income (in birr) _____

2 Maternal Obstetric Information at this pregnancy

2.1 Reproductive History A) Gravidity_____ Parity _____ Abortion_____

2.2 ANC a) Booked b) Unbooked

2.3 If Booked Place Of ANC JMC b) Health Centre c) Other Hospital d) Private

2.4 Fetal presentation a) Vertex b) breech c) shoulder d) Face e)other_____

2.5 Onset of Labor A) Spontaneous B) Induced

3. **Indication for C/D**

3.1 Stage Of Labor at C/D a) FSOL b) SSOL

3.2 Indication for C/D

A. NRFHRP

B. Arrest/protracted cervical dilatation

C. Cephalopelvic disproportion

D. Obstructed labor

E. Arrest of descent in second stage

F. Malpresentation

G. MSAF (if so specify)_____

H. Previos C/D with x –factor

I. OTHER _____

3.3 Cervical Dilatation at time of Decision for C/D

3.4 Station of Presenting part at Time of Decision for C/D

3.5 Decision delivery interval(minutes)

A. In FSOL

B. IN SSOL

3.6 Operation time (in minutes)

3.7 Augmentation before C/D

A. First Stage of labor

a) Yes Reason_____

b) No

B. Second Stage of Labor

a) Yes Reason_____

b) No

4. Maternal Outcome

4.1 Intraoperative Complications a) YES b) No

4.2 If YES to the above question, What complications

A. Uterine incision extension

B. Bladder injury

C. Hysterectomy

4.3 Estimated Blood loss (ml)_____

4.4 Change in Hematocrit (%)

4.5 Postoperative complications a) YES b) NO

4.6 If Yes to the above question, what complication?

A. PPH

B. Blood Transfusion

C. Puerpural sepsis

D. Wound infection

E. Other_____

4.7 Length of stay in hospital(days)_____

5. Neonatal Outcome

5.1 Birth Outcome a) Alive b) Stillbirth

5.2 Birth weight (kg)_____

5.3 APGAR Score 1st minutes_____5th minutes_____

5.4 NICU admission a) Yes b) No

5.5 If Yes to the above, Outcome a ENND b) Alive at Discharge

5.6 If ENND, cause of Death_____

5.7 Length of Stay in NICU

Annex 3 Data Coollection tool - Amharic Version

በጅማ ህክምና ማዕከል፣ ጅማ፣ ደቡብ ምዕራብ ኢትዮጵያ ውስጥ በመጀመሪያ ደረጃ እና ሁለተኛ ደረጃ የቀዶጥገና ወሊድ ለሚገላገሉ እናቶች ላይ በእርግዝና ጊዜ እንዲሁም ከወሊድ በኋላ ጤንነትን በተመለከተ የተዘጋጀ የክሮሴክሽን ጥናት

የመረጃ ሰንጠረዥ እና የእናቶች የፍቃድ ቅጽ(እንግሊዘኛ)

የመረጃ ሰንጠረዥ

እንደምን አደሩ/ዋሉ/አመሹ? ስሜ ዶ/ር ዮናስ አየለ ነው፡፡ በጅማ ዩኒቨርሲቲ ውስጥ የመጨረሻ አመት የእናቶች እና የስነተዋልዶ ሬዚደንት ሀኪም ነኝ፡፡ በስነተዋልዶ እና የእናቶች ጤና የስፔሻላይዝድ ምስክር ወረቀት ለማግኘት በከፊል ማሟያነት በጅማ የህክምና ማዕከል ውስጥ በመጀመሪያ ደረጃ እና ሁለተኛ ደረጃ የቀዶጥገና ወሊድ ለሚገላገሉ እናቶች ላይ በእርግዝና ጊዜ እንዲሁም ከወሊድ በኋላ ጤንነት ላይ ጥናት እያከናወንኩ ነው፡፡ እርስዎ በዚህ ጥናት ላይ እንዲሳተፉ ተመርጠዋል፡፡ የእርስዎ መልሶች በሙሉ በሚስጥራዊነት እንደሚያዙ ላረጋግጥልዎት እወዳለሁ፡፡ የእርስዎን ስም እና አድራሻ መዝግቤ አልይዝም፡፡ እርስዎ በማንኛውም ጊዜ ቃለመጠየቁን የማቋረጥ ወይም መመለስ የማይፈልጓቸውን ጥያቄዎች የመዝለል መብት አለዎት፡፡

በዚህ ጥናት ላይ ለመሳተፍ ፈቃደኛ ከሆኑ፤ ቃለመጠየቁን ለማጠናቀቀ ወደ 15 ደቂቃዎች ያህል ይወስዳል፡፡

ጥያቄ አለዎት?

የፈቃድ ቅጽ

ቃለመጠየቅ ለማከናወን ፈቃደኛ ነዎት?

አዎ☐ አይ☐

ቃለመጠየቁን አሁን መጀመር እችላለሁ?በቃለመጠየቅ ፈጻሚ አማካኝነት የሚፈረም ፡ ከላይ የተጠቀሰውን የፈቃድ ሂደት ለተሳታፊው ማንበቤን አረጋግጣለሁ፡፡

ፊርማ _____

1. ክፍል አንድ፡ማህበራዊ-የስነህዝብ መረጃ

1.1. እድሜ _____የህክምና መዝገብ ቁ_____ስልክ_____

1.2. ብሔር

ሀ) ኦሮሞ ለ) አማራ ሐ) ከፋ መ) ጉራጌ ሠ)ትግሬ ረ)ሌላ_____

1.3. ሀይማኖት

ሀ)ሙስሊም ለ)ኦርቶዶክስ ሐ)ፕሮቴስታንት መ)ዋቃፌታ ሠ)ሌላ

1.4. የመኖሪያ ስፍራ

ሀ) ከተማ ለ)ገጠር

1.5. የትምህርት ሁኔታ

ሀ)ማንበብ እና መጻፍ አልችልም ለ)መጻፍ እና ማንበብ እችላለሁ ሐ) ሁለተኛ ደረጃ ትምህርት መ) ከሁለተኛ ደረጃ ትምህርት በለይ

1.6. የጋብቻ ሁኔታ

ሀ) ያላገባ ለ) ያገባ ሐ) የተፋታ መ)የትዳር አጋር ህይወት ያለፈበት

1.7. የስራ ሁኔታ

ሀ)የቤት እመቤት ለ)ገበሬ ሐ)የመንግስት ሰራተኛ መ) የግል ስራ ሠ) ተማሪ ረ) ሌላ፤ ይግለጹ፡ _____

_____

1.8. ወርሀዊ ገቢ (ብር)_____

2. በዚህ እርግዝና ጊዜ የእናት የስነተዋልዶ መረጃ

1.1. የስነተዋልዶ ታሪክ፡ ሀ) የቀድሞ እርግዝና _____የቀድሞ ወሊድ_____

_____ውርጃ _____

1.2. የወሊድ ጊዜ እንክብካቤ ሀ) ቦታ አስይዣለሁ ለ)ቦታ አላስያዝኩም

1.3. ቦታ ካስያዙ፤የወሊድ ጊዜ ክትትል ስፍራ፡ ሀ)ጅሜማ ለ)ጤና ጣብያ ሐ)ሌላ ሆስፒታል መ)የግል

1.4. የጽንስ በዳሌ ላይ አቀማመጥ፡ ሀ)በጭንቅላት ለ)በመቀyመጫ ሐ) በትከሻ መ) በፊት ሠ) በቅንድብ ረ)በመሀል የራስቅል አጥንት ሰ)ሌላ_____

1.5. ምጥ የጀመረበት ሁኔታ ሀ)በድንገት ለ)ሆን ብሎ

2. በቀዶ ጥገና መውለድ እንዲከመር ያደረጉ ሁኔታዎች

2.1. የማዋለድ ሂደቱ ሲከናወን የምጡ ደረጃ፡ ሀ) FSOL ለ) SSOL

2.2. በቀዶ ጥገና የማዋለድ ሂደቱ የተመከረው በ፡

ሀ. NRFHRP

ለ. ዝግ ያለ የማህጸን መስፋት/መለጠጥ

ሐ. የህጻኑ ጭንቅላት መተለቅ

መ. በወሊድ ጊዜ የሚዘጋጋ/የሚጋርድ ሁኔታ

ሠ.በሁለተኛው ደረጃ ላይ ልጁ ሲወለድ እና ወደታች ሲወርድ የሚያጋጥም እክል

ረ.የህጻኑ በተገቢው አቀማመጥ ላይ አለመሆን

ሰ.የሽርት ውሃ በህጻን የቀደመ አይነምድር ሲቆሽሽ(ይህ ከሆነ ይግለጹ)

ሸ. የቀድሞ የቀዶ ጥገና ወሊድን ተከትሎ የሚኖር የስጋት ሁኔታ

ቀ. ሌላ፡ _____

2.3. በFSOL የቀዶ ጥገና ወሊድ ውሳኔ ጊዜ የሚገኝ የማህጸን መለጠጥ/ስፋትሁኔታ፡ _____

_____

2.4. የቀዶጥገና ወሊድ ውሳኔ በሚወሰንበት ጊዜ የቀረቡበት ሁኔታ

2.5. በውሳኔ እና በወሊድ መካከል ያለው ጊዜ(ደቂቃ)

ሀ. FSOL

ለ) SSOL

2.6. ከቀዶ ጥገና ወሊድ አስቀድሞ ማህጸንን ለማነቃቃት የተከናወነ ድርጊት

ሀ. አዎ፤ ምክንያት፡ _____

ለ. አይ

3. ከእናትነት ረገድ የተገኘ ውጤት

3.1. ከቀዶ ጥገና ጋር በተያያዘ የመጣ ችግር ሀ) አዎ ለ) አይ

3.2. ከላይ ለተጠቀሰው ጥያቄ መልስዎ አዎ ከሆነ፤ ምን ችግር ተፈጠረ?

ሀ. የሆድ/ማህጸን ቅድመሸፋጽ

ለ. የፊኛ ጉዳት

ሐ. የደም ልገሳ

ሠ. የማህጸን ማስወገድ ቀዶ ህክምና

3.3 የቀዶ ጥገና ቆይታ(ደቂቃዎች)

3.4 የተገመተ የደም መፍሰስ(ሚሊ)፡_____

3.5. የቀይ የደም ህዋስ ይዘት ለውጥ(%)_____

3.6 ከቀዶ ጥገና በኋላ የመጡ ችግሮች ሀ) አዎ ለ) አይ

3.7 ከላይ ለተጠቀሰው ጥያቄ መልስዎ አዎ ከሆነ፤ ምን ችግር ተፈጠረ?

ሀ. ከወሊድ በኋላ ብዙ ደም መፍሰስ

ለ. የደም ልገሳ

ሐ. የመራቢያ ህዋስ ኢንፌክሽን

መ. የቁስል ኢንፌክሽን

ሠ. ሌላ፡ _____

3.8. በሆስፒታል ውስጥ የቆየችበት ጊዜ(ቀናት) _____

4. በጨቅላ ህጻን ላይ የታየ ውጤት

4.1 በወሊድ ጊዜ የነበረ ውጤት፡ ሀ) በህይወት ቆይቷል ለ) የጨቅላው ህይወት አልፏል፡፡

4.2 የህጻኑ ክብደት(ኪ.ግ) _____

4.3 የህጻኑ የግምገማ ውቴት 1ኛ ደቂቃ፡ _____5ኛ ደቂቃ፡ _____

4.4. በጨቅላ ህጻን ጽኑ ህክምና ክፍል ውስጥ የተደረገ ቅበላ፡ ሀ) አዎ ለ) አይ

4.5 ከላይ ለተጠቀሰው ጥያቄ መልስዎ አዎ ከሆነ ውጤቱ ሀ) ህጻኑ ህይወቱ አልፏል

ለ.) በሚወጣበት ጊዜ በህይወት ነበር ሐ) እስከ 7ኛው ቀን ድረስ በህይወት ነበር

4.6 የህጻኑ ህይወት ካለፈ፤ _____

4.7 በህጻናት ለይቶ ማቆያ ውስጥ የነበረበት ቆይታ(ቀናት) ፡_____

የተሞላበው በ፡ _____ፊርማ፡ _____ቀን፡ _____

ANNEX 4 – DATA COLLECTION TOOL- AFAAN OROMOO VERSION

Gaffilee qo'annaa Dahuumsaa Fi QaamaWalhoormataaHaadhotaadubartootasarjariisadrkaatokkoffaa fi sadrkaalammafaagodhangiduuttijiru, Giddu Gala FayyaMEDIKALA Jimmaa, Jimma, KibbaLixaItiyoophiyaa; QorannooIlalachaDireeKalachanGoodhame.

Waraqaa oddeffannoo fi eyyama waligaltee haadhaa (Afaan Oromo)

Waraqa Oddeffannoo

Akkam jirtu? Dr. Yonas Ayala jedhama, ani barataa yaala ulfaa fi dhibee gadameessaa kan qo'adhuu yommu ta'u, bartaa wagga dhumaa Yunivarsitii Jimmaati. Ani qoranno dubartoota ciniinsuu sadarkaa fokkoffaa fi sadarkaa lammaaffaa keessatti yaala baqaqsanii hodhuutiin da'an bu'aa fi dhibba haadha fi daa'ima irratti fiduu qo'achatan jira. Qo'annaan kun raawwii barumsa kootiif waraqaa raqaa ispeeshaaliitii Dhibee Ulfaa fi dhibee gadameessaa argachuuf na fayyada.

Isiin qorannoo kana keessattii akka hirmaatanif filatamtanii jirtu. Deebbiiwwan keessan hundumtuu akka icittidhaan qabaman isiinifan mirakannessa.Maqaaf ykn tessoon keesan hin galmessu. Duubdeebii kana bakka barbaddanitti dhaabuu ni danddeessu, ykn gaaffii deebisuu hin dandeenyee hunda bira darbuu ni danddessu.

Qoranno kana keessaatti hirmaachuudhaaf yoo walii galtan, affdeebbichi daqqiqaa 15 ni fudhata. Gaafffiiqabdu?

Gaaffiigaaffataaolaanaaargachuubarbaadduu- 0913994973

Guucawaligaltte

Duubdeebiikanaafwaligltu?

eyyenmi Lak

afdeebii kiyyaa haa jalqabuu? Afdeebiigaafaaadhaankanmallatawu: hirmaataadhaaf waligltee eyyamaa armaan olii akkan dubisee nin mirkannnessa

mallatto: _____

2. Kutatookkoffaahalaahaawasumaaummataa

1.1 umrii _____ MRN _____ lakkofsabilbilaa_____

1.2 sabummaa

a) Oromo b) Amaaraa c) Kafaa d) Guraage e) Tigiree f) kanbiroo

2.3 amanttii

a) Musilima b) Ortodoksii c) Protestaantii d) 'Waaqeffataa' e) kanbiroo

2.4 tessoo jireenyaa a) magaalaa b) baadiyaa

2.5 Sadrkaa baruumsaa a) dubisuu fi barresuuhindanada'u b) dubisuu fi barreessu qofa d. barruumsa sadrkalammafaa e. baruumsaasadrakaalamaffaairraaol

2.6 Haalaherumaa a) qophaa b) kanheruumtee c) kanhiktee d) kandhiirsiijalaadu'ee

2.7 haalahoji a) giftiimanaa b)qonnaanbultuu c)hojattuumottuummaa d) hojioffiikanhojjattuu e) barattu d)kanbirooibsii_____

2.8 galiiji'aa(birriidhana_____

3 oddefannooulfumma haadhaa ulfaammaa

2.1 seenaawalhoormaataaA) ulfa_____ walfakkattina_____ulfabaasu_____

5.8 ANC a) qabatamee b) hinqabatamnee

5.9 Yooqabatameebakka ANCqabatmeea)JMC b) giddu gala fayyaa c) hoospitaala biro d) kandhuunfaa

5.10 Halaataa'uumsamiciree a) vatreeksii b) tessuumaan c) gatettiidhan d) fuulaane)dugdaan f) mataadhaan g) kan biro _____

5.11 Haaladahuumsaa A) haatatamaaoffiisaatin B)si'eesuudhan

6. agarsiisa C/D

6.1 sadarkaa cininfachuu gama C/D a) FSOL b) SSOL

6.2 muldhisa C/D

A. NRFHRP

B. Afaangadaammeessaahaalamaleedhiphachuuyknbaldhachuu

C. Walgitudhabuuafaangadameesa

D. Cinnisacimaa

E. Sdrkagadiianaalammaffairrattihiidhachuu

F. Malpresentation

G. MSAF (yoo jiraatee ibsii)_____

H. C/D kan yeroo darbeesababa x –

I. KANBIROO _____

6.3 AfaanGadamessaayemmumurteenC/Dkan FSOL_____

6.4 YemmumurtttinC/Dkennamuqamnidhihatuubakkajiruu

6.5 Turiimurteekennuudhaaf(daqiiqaadhaan)

A. FSOL

B. IN SSOL

6.6 C/D duramari'achuu

a) Eyyansababa_____

b) miti

7. bu'aahaadhaa

7.1 opereshiniikeessaa a) EYYAN b) MITI

7.2 gaaffileearmaanoliittif EEYAN yoota'ee, rakkoleenjiranmaalfa'aadha:

A. Hammaamu ramaagadaameesaa

B. Midhamaa afuffee fincaanii

C. Dhiiga fudhachuu

D. Shaakalagaddaammeesaa

7.3 YerooOpereshinichi Fixe (daqaiiqaadhaan)

7.4 Tilmaamadhigadhangalaa'ee

(ml)_____

7.5 Garagarrumaadhiggadimmaakennammekeessattijiru(%)_____

7.6 Dhukkubiiopereshiiniisarjariiboodadhuufu) EEYYAN b) MITI

7.7 Gaaffiileearmaanoliittifdeebbinkeessanyooeyyanta'e, walxaxinsiijiruumaaliidha?

A. PPH

B. Dhigadabarsuu

C. Dhukkubamadaawu

D. Dhukubamadaawu

E. Kanbiroo_____

7.8 yerootuurttiihoospitaa (guyyota)_____

8. bu'aadaa'imaharaaadhalatee

8.1 bu'aadahuumsaa a) lubbuudhankanjiruu b) luubuudhankanjirre

8.2 ulfaattinadaa'imadhalatee (kg)_____

8.3 QabxiiAPGAR daqqiqaa 1ffaa_____5th minutes_____

8.4 NICU dhaanfuudhatmuu a) eyyan b) mitii

8.5 Kanarmaanoliittifeyyenyoota'ee, bu'aa ENND b) yemmubahuulubbudhaannijira c)hanagguyyaa 7ffattii lubbdhannijira

8.6 Yoo ENNDta'ee, sababadu'aa_____

8.7 YerooturttiiNICUkeessati (guyyootaan)_____

Kan guutee_____mallattoo_____guyyaa_____