

**ADDIS ABABA UNIVERSITY**  
**COLLEGE OF HEALTH SCIENCES**  
**SCHOOL OF NURSING & MIDWIFERY**  
**DEPARTMENT OF MIDWIFERY**

**DECISION-TO-DELIVERY INTERVAL AND ASSOCIATED FACTORS  
AMONG MOTHERS WHO UNDERWENT EMERGENCY CESAREAN  
SECTION AT SELECTED PUBLIC HOSPITALS OF ADDIS ABABA CITY,  
ETHIOPIA, 2023.**

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## STATEMENT OF DECLARATION

By my signature below, I declare and affirm that this thesis is my original work. I have followed all ethical principles of scholarship in the preparation, data collection, data analysis, and completion of this thesis. All scholarly matter that is included in the thesis has been given recognition through citation. I affirm that I have cited and referenced all sources used in this document. Every effort has been made to avoid plagiarism in the preparation of this thesis. This thesis has been accepted as a partial fulfilment of the requirement for graduate degree from the Addis Ababa University, College of Health Sciences, School of Allied Health Sciences, Department of Nursing and Midwifery. It has never been presented and submitted in a whole or in part, in this or any other university for the award of degree, diploma or other qualification certificates.

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## ACRONYMS AND ABBREVIATIONS

<b>ACOG</b>	American College of Obstetrics and Gynecology
<b>ANC</b>	Antenatal care
<b>BPCR</b>	Birth Preparedness and complication readiness
<b>BSC</b>	Bachelor science
<b>C/S</b>	Cesarean Section
<b>CPD</b>	Cephalic - pelvic Disproportion
<b>DDI</b>	Decision to Delivery Interval
<b>ECD</b>	Emergency Cesarean Delivery
<b>ECS</b>	Emergency Cesarean Section
<b>EDHS</b>	Ethiopian demographic health survey
<b>ETB</b>	Ethiopian birr
<b>MCH</b>	Maternity and child health
<b>NICE</b>	National Institute of Clinical Experience
<b>NRFHBP</b>	Non-Reassuring Fetal Heart Beat Pattern
<b>RCOG</b>	Royal College of Obstetrics and Gynecology
<b>UK</b>	United Kingdom
<b>USA</b>	United States of America
<b>VBAC</b>	Vaginal birth after cesarean section
<b>VIF</b>	Variable inflations factor
<b>WHO</b>	World Health Organization

# TABLE OF CONTENTS

<b>ACKNOWLEDGMENT .....</b>	<b>i</b>
<b>ACRONYMS AND ABBREVIATIONS .....</b>	<b>ii</b>
<b>TABLE OF CONTENTS.....</b>	<b>iii</b>
<b>LIST OF FIGURES.....</b>	<b>vi</b>
<b>LIST OF TABLES .....</b>	<b>vii</b>
<b>ABSTRACT .....</b>	<b>viii</b>
<b>1. INTRODUCTION .....</b>	<b>1</b>
<b>1.1 Background.....</b>	<b>1</b>
<b>1.2 Statement of the Problem .....</b>	<b>3</b>
<b>1.3 Significance of the Study .....</b>	<b>5</b>
<b>2. LITERATURE REVIEW .....</b>	<b>6</b>
<b>2. 1 Decision-to-delivery interval for emergency cesarean section .....</b>	<b>Error! Bookmark not defined.</b>
<b>2. 2 Magnitude of decision-to-delivery interval for emergency cesarean section.....</b>	<b>6</b>
<b>2.3 Factors associated with decision-to-delivery interval.....</b>	<b>7</b>
<b>2.3.1 Socio-demographic Characteristics.....</b>	<b>7</b>
<b>2.3.2 Obstetrics-related characteristics.....</b>	<b>7</b>
<b>2.3.3 Preoperative and intra-operative time related characteristics.....</b>	<b>7</b>
<b>2.3.4 Health professional and accessibility related characteristics .....</b>	<b>8</b>
<b>2.3. Conceptual framework.....</b>	<b>9</b>
<b>3. OBJECTIVE .....</b>	<b>10</b>
<b>3.1 General Objective .....</b>	<b>10</b>
<b>3.2 Specific Objectives .....</b>	<b>10</b>
<b>4. METHODS AND MATERIALS.....</b>	<b>11</b>
<b>4.1 Study Area and Period .....</b>	<b>11</b>

<b>4.2 Study Design .....</b>	<b>11</b>
<b>4.3 Description of Population.....</b>	<b>11</b>
<b>4.3.2 Study population.....</b>	<b>11</b>
<b>4.4 Eligibility Criteria .....</b>	<b>11</b>
<b>4.4.1 Inclusion criteria.....</b>	<b>11</b>
<b>4.4.2 Exclusion criteria.....</b>	<b>12</b>
<b>4.5 Sampling Methods.....</b>	<b>12</b>
<b>4.5.1 Sample size calculation for the first objective.....</b>	<b>12</b>
<b>4.5.2. Sample size calculation for the second objective.....</b>	<b>12</b>
<b>4.5.3 Sampling techniques and procedures.....</b>	<b>13</b>
<b>4.6 Operational Definition .....</b>	<b>15</b>
<b>4.7 Study Variable .....</b>	<b>16</b>
<b>4.7.1 Dependent variable .....</b>	<b>16</b>
<b>4.7.2 Independent variables.....</b>	<b>16</b>
<b>4.8 Data Collection Techniques.....</b>	<b>16</b>
<b>4.9 Data Quality Control.....</b>	<b>16</b>
<b>4.10 Data Processing and Analysis .....</b>	<b>17</b>
<b>4.11 Ethical Consideration.....</b>	<b>17</b>
<b>4.12 Dissemination of the Results.....</b>	<b>Error! Bookmark not defined.</b>
<b>5. RESULT .....</b>	<b>18</b>
<b>5.1. Socio - demographic characteristics of the participants .....</b>	<b>18</b>
<b>5.2. The obstetrics and medical related characteristics .....</b>	<b>19</b>
<b>5.3. Indication for Emergency Cesarean Section.....</b>	<b>21</b>
<b>5. 4. Pre-operative and intra-operative time related characteristics .....</b>	<b>21</b>
<b>5.5. Health Professional and anesthesia type related characteristics .....</b>	<b>23</b>
<b>5.6. Factors associated to decision- to- delivery interval.....</b>	<b>24</b>

<b>6. DISCUSSION .....</b>	<b>27</b>
<b>7. STRENGTH AND LIMITATION OF THE STUDY .....</b>	<b>29</b>
<b>8. CONCLUSSION.....</b>	<b>32</b>
<b>9. RECOMMENDATION .....</b>	<b>31</b>
<b>10. REFERENCES .....</b>	<b>32</b>
<b>11. ANNEXE .....</b>	<b>37</b>
<b>Annex I: Participant Information sheet .....</b>	<b>37</b>
<b>Annex II: Informed Consent form .....</b>	<b>38</b>
<b>Annex III: English version questionnaire.....</b>	<b>39</b>
<b>ቅጽ IV: የተሳታፊዎች መረጃ መስጫ ቅጽ- በአማርኛ.....</b>	<b>43</b>
<b>ቅጽ V: የስምምነት መግለጫ ፎርም- በአማርኛ .....</b>	<b>45</b>
<b>ቅጽ VI: በአማርኛ የተዘጋጀ መጠይቅ .....</b>	<b>46</b>

## LIST OF FIGURES

<b>Figure 1:</b> Conceptual framework showing factors associated with decision- to- delivery interval for emergency cesarean section (adapted from ([2, 14, 15, 28-31, 36, 39-41, 44-46])).....	9
<b>Figure 2:</b> Schematic presentation of sampling procedures.....	15
<b>Figure 3 :</b> Indications for C/S among mothers who underwent emergency cesarean section in the selected public hospitals of Addis Ababa city, Ethiopia , 2023. ....	21
<b>Figure 4 :</b> Proportion of decision – to – delivery interval among mothers who underwent emergency cesarean section in the selected public hospitals of Addis Ababa City, Ethiopia,2023.	

## LIST OF TABLES

<b>Table 1:</b> Showing the sample size calculation of factors associated to DDI from two different literatures .....	12
<b>Table 2:</b> The socio - demographic characteristics of mothers who underwent emergency cesarean section in the selected public hospitals of Addis Ababa city, Ethiopia , 2023.....	18
<b>Table 3 :</b> The obstetrics and medical characteristics of mothers who underwent emergency cesarean section in the selected public hospitals of Addis Ababa city, Ethiopia , 2023.....	20
<b>Table 4 :</b> Pre-operative and intra-operative time related characteristics of mothers who underwent emergency cesarean section in the selected public hospitals of Addis Ababa city, Ethiopia, 2023.	22
<b>Table 5 :</b> Health professional and Anesthesia type related characteristics for mothers who underwent emergency cesarean section in the selected public hospitals of Addis Ababa city, Ethiopia, 2023.	24
<b>Table 6 :</b> Factors associated to decision to delivery interval for mothers who underwent ECS in the selected public hospitals of Addis Ababa city, Ethiopia , 2023.	

## ABSTRACT

**Background:** DDI for ECS is a matter of quality obstetrics care service. Unnecessary delays may end up in morbidity or mortality of the mother and/or the fetus. Therefore, the delivery interval must be within a reasonable time and the recommended one is within 30 minutes. The study area lacks information.

**Objective:** Determine DDI and associated factors among mothers who underwent emergency cesarean section in the chosen governmental institutions of Addis Ababa City, Ethiopia, 2023.

**Method:** A cross-sectional study was carried out in governmental hospitals of Addis Ababa city with total sample size of 348. Each respondent was recruited by means of probability sampling technique. The information was gathered based on the pilot study of interviewer-administered tool and document review after written consent secured from every respondent. The gathered information's were coded and entered in Epi-data version 4.6.0.6 and analyzed using SPSS version 26. The binary logistic regression method was employed to detect risk factors related to crash c/s. Statistically, significance was determined by a P-value of less  $\leq 0.05$ .

**Result:** The total magnitude of DDI that was done within the recommended period was 23% [ 95% CI (18.9-27.6)] and the Median time was 45(7-155) min. Fetal distress was the most common indication for ECS. The following factors were significantly linked to the decision-to-delivery interval: surgeon status [25.019;95% CI (10.602,59.037)], indications other than fetal distress [AOR = 2.775; 95% CI (1.395,5.518)], type of anesthesia [AOR=13.597;95% CI (4.969,37.209)].

**Conclusion:** The study finding indicates that the magnitude of the crash c/s for ECS according to the international recommended time interval was very low. Therefore, hospitals and obstetric care providers should be alert and conscious of immediate life-threatening conditions.

**Keywords:** Crash, decision-incision time, Mothers, Ethiopia

# 1. INTRODUCTION

## 1.1 Background

Currently, an option for giving birth to a baby is commonly practiced by cesarean section (C/S), which involves the delivery of the fetus through an incision of the abdomen and uterus after twenty-eight weeks of gestational age[1]. Depending upon the seriousness of the fetomaternal problems, a new categorization for cesarean sections was developed, and this can aid in patient prioritization[2]. According to Lucas et al., there are four categories for Caesarean sections: emergency (category-I), urgent (category-II), scheduled (category-III), and elective (category-IV) [3]. Category –I cesarean section is performed for the life endangering conditions of the mother/the newborn [4].

Worldwide, both in industrialized and developing nations, the use of cesarean sections among laboring women has been steadily rising [5]. The regions with the biggest percentage increases were Latin America and the Caribbean (from 22.8% to 42.2%), Asia (4.4% to 19.5%), Oceania (18.5% to 32.6%), Europe (11.2%), North America (from 22.3% to 32.3%), and Africa (2.9% to 7.4%) [6, 7]. Based on the Demographic Health Survey of Ethiopian (EDHS) 2019, cesarean section rate was 16%, and specifically, in Addis Ababa, it was the highest at 22.9% [8]. In the world, around 1% of pregnancies are required Emergency Cesarean section(ECS) and only when used properly it can improve fetomaternal outcomes [3].

For a better outcome for the mother and the fetus, the international guideline recommends considering the decision-to-delivery interval (DDI) of emergency cesarean deliveries [9]. DDI is the period between a decision to perform an emergency cesarean section and the actual delivery of the neonate [4]. It covers the time required to prepare the patient and the operating room, as well as the induction of anesthesia to baby out. Emergency cesarean section is performed for life-threatening fetomaternal conditions during pregnancy or labor and delivery so, the decision-to-delivery interval should not be delayed [10].

For emergency cesarean section, standard guidelines in the United States and the United Kingdom recommends 30 minutes as an upper limit for the DIT [10, 11]. In developed countries for extreme life-threatening indications in a fetus or a mother or both, a 30-minute DDI rule is mandatory but, in low-income countries, it was not achieved. This indicates that the risks associated with ECS could be much higher in developing countries and fetal deaths occurred while waiting for ECS [10, 12-14]. These might be due to the three delays that prevent pregnant and laboring women from obtaining the professional treatment of emergency cesarean section within the recommended time. In Nigeria about 0.9% of ECS was done within the advisable DDI minutes similarly study in Kenya showed that 3% of ECS was achieved within 30 minutes of DDI[15]. In Ethiopia, studies showed that from 17.5% to 20.3% of crash c/s was within the advisable period [2, 16, 17].

The cesarean section procedure is intricate and multifaceted, requiring anesthesiologists, obstetricians, theatre nurses, midwives, and neonatologists. Hence, these staff members should be coordinated, for an emergency cesarean section to finish within the recommended time [14].

## 1.2 Statement of Problem

Delayance of DDI for crash c/s leads poor feto-mother outcomes [18]. In the United States, in the past decade, severe maternal morbidity was increased by 75% for complications associated with emergency cesarean delivery (ECD) [11]. The United Kingdom National Institute of Health and Care Excellence (NICE) also indicated that with prolonged DDI for ECS, the perinatal mortality was 73.2% [9].

According to a study conducted in Thailand, the rate of stillbirth was 12.5% when advisable time for crash c/s was exceeded. This is 6.4 times higher than the incidence of stillbirth when the recommended 30-minute DDI was met [19]. In India revealed risk to neonates' lives increased by 4.6 times when the mean delivery time interval (DDI) was more than 75 minutes. Three of the nine perinatal fatalities also happened while the mother was waiting for ECD [14]. According to a study conducted in Oman, DDIs of over 60 minutes were strongly linked to poor newborn outcomes, including more transfers to NICU [20].

According to research done in Nigeria, there was 1% fresh stillbirth and 5.1% perinatal mortality for every 75-min rise in DDI [15]. In Canada, the likelihood of a stillbirth increased six times more frequently than it did when the delay between the emergency cesarean and delivery was longer than thirty minutes [21]. According to a study carried out in Ghana, prolonged DDI was strongly related to unfavorable perinatal outcomes [22]. Additionally, according to research conducted in Kenya, 30% of babies had Apgar scores of 5 or lower, and 38% of the mothers experienced hemorrhage as a result of extended DDI for ECS. [23].

Despite the increase in emergency cesarean section service in Ethiopia, there are poor maternal and neonatal outcomes related to emergency cesarean section (0.74% maternal case fatality rate and 14% stillbirths) [24, 25]. Previous research conducted in some parts of Amhara region, only 17.5 to 20.3% of crash c/s, the DDI was within advisable time [2, 16, 17]. Those newborns who delivered after advisable time in Ethiopia had 2 times dangerous when compared to newborns delivered within the recommended 30 minutes of DDI [26]. In addition to these three stillbirths and two neonatal losses due to prolonged DDI for ECSs was happened [26]. Therefore, according to the studies, giving the service of ECS is not sufficient, quality of the service is required for the better outcomes of the mother and the fetus. DDI is not only a matter of quality but also a key for medico-legal issues [27].

Prolonged DDI for emergency cesarean delivery has resulted in underprivileged newborn effects, including severe suffocation, admission to NICU, and IUFD. It also causes prolonged mental problems such as cerebral palsy and it creates psychological and physical trauma to the mother [9, 16, 28]. Potential factors have been reported to affect DDI, include:- social factors, the severity of fetal-maternal complications, rank of the surgeon, type of anesthesia, time and day of surgery, date-to-Anesthesia induction time interval, and Anesthesia time [2, 15, 16, 29-33].

According to different guidelines, ECS should be done within thirty minutes and obstetric care providers need to be ready in advance for rapid emergencies to solve it [1, 34]. In addition to this establishing a rapid response team, an adequate number of experienced staff, fast and comfortable transport of clients between the admission room, labor ward, and operating room, and providing a well-equipped delivery room for emergency conditions are recommended to decrease fetal-maternal mortality and morbidity [10, 11].

In Ethiopia, little research has been conducted about DDI for category one c/s. The study area lacks information on how long it took between the decision to the actual delivery of the baby and the influences related to this. As a result, a goal was to evaluate DDI and related factors for emergency cesarean sections in the chosen government hospitals.

### **1.3 Significance of the Study**

Delayance to DDI for ECS has been associated with increased poor maternal and neonatal outcomes [35]. Standard international guidelines recommends that delivery by ECS must stand begun at the advisable time to minimize feto and moms morbidity as well mortality[11]. Therefore, to address this, one strategy is to provide high-quality obstetric care services, which includes reducing third-degree delays, delays in receiving appropriate care and shortening the time between decision and delivery in the case of ECS[1].

DDI recognized as crucial parameter for quality of feto-maternal care. But, there is shortage of data that shows DDI at study area. It assessed DDI and associated factors of pregnant mothers who underwent ECS at selected governmental health facilities, which benefit a better understanding of the factors that contribute to increasing DDI can help in improving the standard of care and enhancing both the mother's and the newborn's wellbeing. In addition to this, the result obtained from this study will help us to well establish achievable DDI protocols for ECS in the area. It will also benefit us to know the extent of delays in DDI times.

The study will deliver significant data to stakeholders to implement interventions on the DDI for ECS health facilities to emphasize factors that inspiration DDI. Furthermore, this study will be used as a reference for further investigators and students.

## 2. LITERATURE REVIEW

DDI is a vital and fundamental part of critical conduct in severely compromised situations of the mom/the neonate[10]. Depending on the recommendations international standard guidelines DDI for ECS is below thirty [11, 24, 36]. Enhanced information about the factors of a long DDI during ECS might help improving the quality of care and thereby increase the well-being of the mothers and the neonate [33].

### 2. 2 Magnitude of DDI for ECS

Research conducted in Germany indicated that of 426 emergency cesarean deliveries, 98.9% were done within twenty minutes and the average DDI was 7.66 minutes [28]. In addition to this another study in Germany found median DDI for ECS was 10 minutes and that all of them were completed within 30 minutes [37]. Similarly, in France, about 90% of women's decision-to-delivery intervals (DDIs) were under 15 minutes, and the median DDI was 10 minutes [38]. However, in Cameroon among 165 emergency cesarean deliveries, only 20% of them were achieved within thirty minutes [33].

According to research conducted in a tertiary care hospital in Thailand, the mean DDI was 82 minutes [19]. While in Norway, the mean DDI for all ECS were 53 minutes [39]. A study conducted in Sweden also showed that 135 ECDs had a mean DDI of 17.38.1 minutes, and 92% of them were delivered within 30 minutes[40]. Whereas in India just 30% of emergency CS patients performed within the recommended DDI of 30 minutes [27].

A study conducted in Canadian median DDI were 17 minutes and 96.9% of ECDs had DDIs of less than 30 minutes [21]. In contrast in Nigeria about 5.7% of ECD were achieved within the suggested 30 minutes and after one-year similar study done in the area indicated that only 2.1% of ECD took place within 30 minutes [4, 15]. Moreover, in Tanzania, the mean DDI was 60 minutes, only 12% of operations were completed within 30 minutes after the decision time [41].

A study done in Uganda showed that the mean DDI were 5.5 hours, and ECS was implemented each 105 minutes [42]. Another study in Uganda also indicated that among 297 emergency cesarean deliveries only 0.7% of mothers had decision-to-delivery intervals within thirty minutes [43]. Similarly, a study conducted in Kenya indicated that from 330 ECDs only 3% and 24% were performed within thirty minutes and one hour respectively [23].

South Gondar, North Gondar, and Bahir Dar referral hospitals indicated the DDI for ECS below thirty minutes was 17.5%, 19.6%, and 20.3% respectively [2, 16, 17].

## **2.3 Factors Associated with Decision-to-Delivery Interval**

### **2.3.1 Socio and demographic related characteristics**

Socio-demographic Characteristics in this study are composed of several variables: maternal age, educational status, employment status, and presence of attendants or families. A study done in Bangladesh indicated that mothers with having age at first birth greater than or equal to 25yrs had 2.75 times significantly lower odds of delivering through emergency cesarean section than women at first birth less than 18yrs [44].

A study done in Cameroon indicated that lower education level mothers were associated with delays in decision-incision time [33, 44]. Another study in Cameroon showed that unemployment and the absence of families during decisions were associated with the long decision-incision time in performing the emergency cesarean section [33].

### **2.3.2 Obstetrics-related characteristics**

Obstetric warnings for crash c/s affect DDI. According to a study conducted in Thailand, mothers with fetal distress had significantly shorter time intervals than those with other indications [31]. On the contrary, studies conducted in India and Nigeria showed that women with cord prolapse but, in Tanzania Cephalic-pelvic Disproportion (CPD) had the shortest DDI time than other indications [15, 29, 41]. A study done in Norway also indicated that cord prolapse, abruption placenta, and non-reassuring fetal heartbeat were the most indications of ECDs and had a short DDI than other indications [39]. To encourage informed consent and avoid unwanted delays in ECS, a prenatal visit is an ideal time to learn about birth preparedness and complication readiness plan [41]. A study conducted in Singapore indicated that mothers who were repeated cesarean sections had a longer decision to delivery interval [30]. A study done in Ethiopia also indicated that women who did not refer from other health facilities had shorter time intervals of emergency cesarean section [16].

### **2.3.3 Preoperative and intra-operative time-related characteristics**

A study conducted in Germany showed that the DDI for crash made during off duties was expressively lengthy [28] but, In Sweden, there was no change in DDI according to the shifting

time and working day [40]. A study conducted in Thailand indicated that ECSs done During after-office hours had shorter time intervals [19] on the contrary in Singapore shorter DDI was seen during office hours[30].

A Study done in Uganda showed that mothers whose decisions were made during the daytime had a longer decision-to-delivery interval [43]. A study conducted in Gondar showed that mothers whose emergency cesarean section was done during nighttime had shorter DDI but in Bahir Dar shorter DDI was seen during daytime[2, 16].

A study conducted in Ethiopia indicated that those mothers whose decision-time-to-anesthesia induction time interval was less than or equal to 15 min were approximately 5 more odds had recommended DDI than mothers whose decision-to-anesthesia time was greater than 15 min [2]. Other studies conducted in Ethiopia also showed that mothers whose anesthesia induction time-to-skin incision time interval was greater than 10 minutes were more likely to have prolonged DDI than those mothers whose anesthesia induction time-to-skin incision time interval was less than or equal to 10 minutes [17, 26].

### **2.3.4 Health professional and anesthesia type-related characteristics**

The physician's level of experience is a reliable indicator of their adherence to the suggested decision to delivery time. Studies carried out in Norway, Singapore, and Ethiopia revealed that emergency cesarean deliveries performed by senior physicians were achieved within the recommended short period than trainee physicians [16, 30, 39].

The type of anesthesia that is administered for emergency cesarean section also determines the decision on delivery intervals. A study conducted in France indicated that primary general anesthesia had the longest decision-to-delivery time compared to epidural top-up sedation [38]. The studies conducted in Cameroon, Norway, Sweden, Nigeria, and Ethiopia showed that emergency cesarean deliveries performed under general anesthesia were completed within a short decision to delivery time than under spinal anesthesia [9, 16, 33, 39, 40, 45].

### 2.3. Conceptual Framework

In this framework, the DDI for ECS is probably to be influenced by the groups of independent variables towards the dependent variable and connected by a single arrow includes; socio-demographic characteristics, obstetrics characteristics, preoperative-intra-operative time characteristics, and health professional and anesthesia type characteristics.

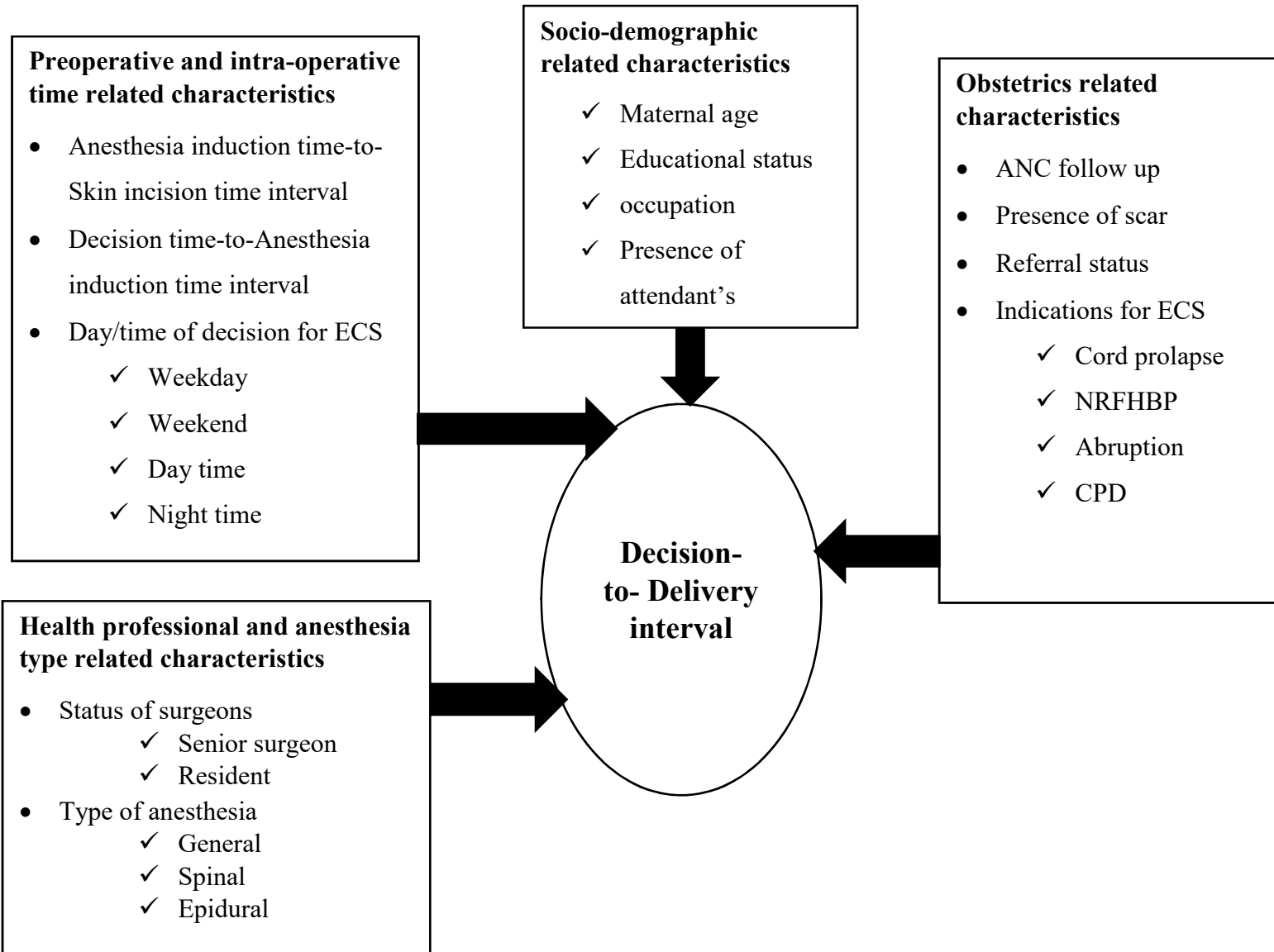


Figure 1. Conceptual Framework Illustrating the Factors Influencing the DDI for ECS (adapted from ([2, 14, 15, 28-31, 36, 39-41, 44, 46, 47])).

### **3. OBJECTIVE**

#### **3.1 General Objective**

- Determine decision-delivery interval and associated factors among mothers who underwent emergency cesarean section at the chosen governmental health facilities of Addis Ababa City, Ethiopia,2023.

#### **3.2 Specific Objectives**

- To determine decision-to-delivery interval among mothers who underwent emergency cesarean section at the chosen governmental health facilities of Addis Ababa City,2023.
- To detect influences related to decision-to-delivery interval among mothers who underwent emergency cesarean section at selected public hospitals of Addis Ababa City,2023

## **4. METHODS AND MATERIALS**

### **4.1 Place of the Study and Period**

It was done in the selected public hospitals of Addis Ababa City from March 29, 2023 - April 29, 2023. It's situated in the geographic middle of the nation on a plateau with good water supply that's bordered by hills and mountains. In the city, there are 13 public hospitals and they give MCH services including cesarean section except for Ammanuel's specialized mental health hospital. Five of these hospitals are run by the Federal Ministry of Health, while six are overseen by the Addis Ababa Health Bureau, one is under the control of the police, and the other is under the control of the armed forces.

The investigation was carried out at Zewditu Memorial Hospital, Saint Paul's Hospital Millennium Medical College Tikur Anbessa Specialized Hospital and Gandhi Memorial Hospital. Under the supervision of Ethiopia's Ministry of Education, Tikur Anbessa Specialized Hospital serves as both a referral and teaching facility. A referral and teaching hospital run by the Federal Ministry of Health is Saint Paul's Hospital Millennium Medical College. Governmental hospitals operated by the Addis Ababa health bureau include Gandhi Memorial Hospital and Zewditu Memorial Hospital.

### **4.2 Research Design**

This study was conducted using a facility-based cross-sectional study design.

### **4.3 Description of Population**

#### **4.3.1 population Source**

All mothers who underwent emergency cesarean section, at governmental hospitals of Addis Ababa city.

#### **4.3.2 Study Participant**

All mothers had undergone emergency cesarean section, on the chosen governmental hospitals of Addis Ababa city.

### **4.4 Criteria of eligibility**

#### **4.4.1 Criteria for inclusion**

- ✓ All mothers who underwent emergency cesarean section and those who voluntarily participated in the study period.

#### 4.4.2 Criteria for exclusion

- ✓ Mothers who were gravely unwell and unable to respond while the data was being collected

### 4.5 Sampling Methods

#### 4.5.1 Sample size calculation for the first objective

Using just one population proportion formula, the sample size was determined. based on the 20.3% of moms at the public hospitals in Bahir Dar who followed the advised delivery interval [16].

$$n = \frac{(Z_{\alpha/2})^2 P (1- P)}{d^2} = \frac{(1.96)^2 0.203(1- 0.203)}{(0.05)^2} = 249$$

n= is the sample size, which was determined.

$Z_{\frac{\alpha}{2}}$  = at a 95% confidence level, the statistical significance threshold is 1.96.

P= Proportion of DDI at Bahir Dar city =0.203

d = margin of error at 5 %( 0.05)

By considering a 10% non-response rate, then the sample size gave 274.

#### 4.5.2. Sample size calculation for the second objective

Using the two population proportion formula. By using Epi-Info statistical package software considering two population proportion formulas with the assumption using r = 1 (ratio of exposed and unexposed), 80% power, 95% confidence level ( $Z_{\alpha/2} = 1.96$ ), where P1 is the proportion of exposed and P2 is the proportion of unexposed. Different variables that were associated with a DDI for crash were used.

As shown in the table below, 348 was the highest number sample size calculated using EPI-INFO. So, this was higher than the first objective, which was 274. so, the last sample size for this study was 348.

**Table 1: Showing the sample size calculation of factors associated with decision-to-delivery interval from two different literature**

Variables	Proportions	Sample size	10% non-response rate	Reference
Availability of materials	P1, (Exposed) = 22.9%	162	178	[16, 17]
	P2, (Unexposed) = 6.25%			
Anesthesia type	P1, Exposed) = 90.7%	316	348	[16]
	P2, (Unexposed) = 78.8%			
Transfer time	P1, (Exposed) = 73.4%	44	48	[16]
	P2, (Unexposed) = 27.3%			

### 4.5.3 Sampling Techniques and Procedures

In Addis Ababa, there are 13 government hospitals, and 12 of them offer cesarean section deliveries. Zewditu Memorial Hospital, Gandhi Memorial Hospital, Tikur Anbesa Specialized Hospital and Saint Paul's Hospital Millennium Medical College hospitals were chosen for this study through a lottery system. The number of samples was proportionally distributed to each hospital based on the last year's similar average monthly number of ECS reports. The hospital's delivery registration book shows that for five consecutive months, Gandhi Memorial Hospital had an average monthly number of emergency C/S of 145, Saint Paul's Hospital Millennium Medical College had an average monthly number of 116, Tikur Anbesa Specialized Hospital had an average monthly number of 108, and Zewditu Memorial Hospital had an average monthly number of 96.

Systematic random sampling was used to choose respondents. Each respondent was chosen by using probability sampling technique. So, every interval in each hospital was included in the study.

Then using the formula;

$AZ = (L/A) M$  where

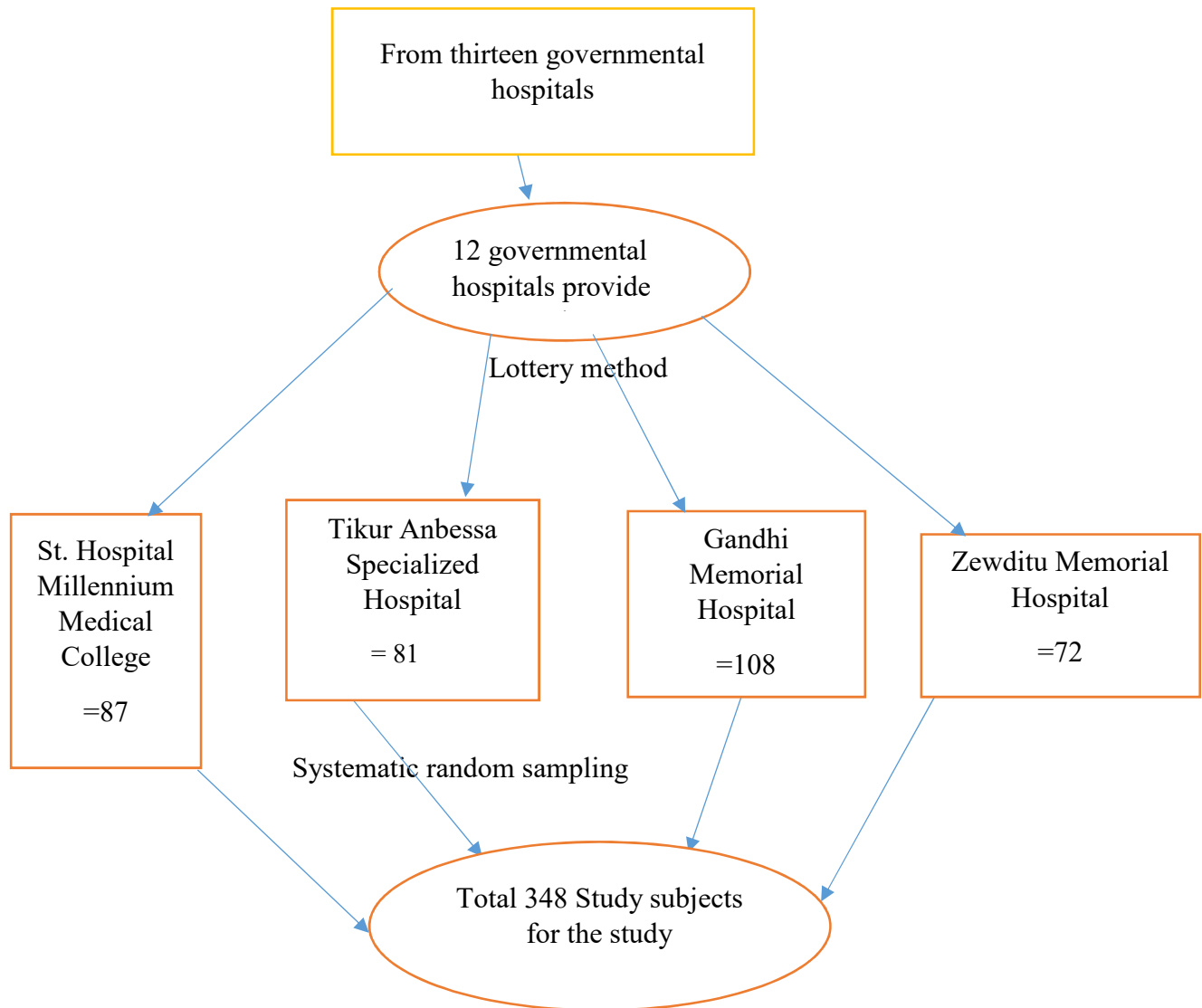
AZ= the sample size was allocated for “Z” hospital

M =Population size that “Z” hospital averagely provides ECS services.

L = Total sample size for the study=348

A= Total population size (average number of ECS at Saint Paul’s Hospital Millennium Medical College, Zewditu Memorial Hospital, Zewditu Memorial Hospital, and Tikur Anbesa Specialized Hospital) = 145+116+108+96 = 465

- For Saint Paul’s Hospital Millennium Medical College =  $(348/ 465)116 =87$
- For Tikur Anbesa Specialized Hospital =  $(348/ 465)108=81$
- For Gandhi Memorial Hospital =  $(348/ 465)145=108$
- For Zewditu Memorial Hospital =  $(348/ 465)96=72$



**Figure 2: Schematic presentation of sampling procedures**

#### **4.6 Operational Definition**

**Decision-to-Delivery Interval (DDI):** This is the period between a decision to perform an emergency cesarean section (ECS) and the delivery of the baby and 30 min is used as a cutoff point to say delayed or not [30, 48].

**Decision Time:** This is the time when the senior resident /senior obstetrician on duty decided to perform an emergency cesarean section [49].

**Decision-to-Anesthesia induction :** a period booked from the date for ECS to starting time of anesthesia induction and 15 min is used as the cut-off point to say delayed or not [2].

**Anesthesia induction time-to-Skin incision time.** The time taken from arrival at the operation theater and the immediate starting of anesthesia induction-to-skin incision time interval and 10 minutes used as a cut-off point to say delayed or not [50]

**Skin incision time-to-Baby out time:** The time taken from skin incision to delivery of the baby and 5 min used as a cutoff point to say delayed or not [27]

## 4.7 Study Variable

### 4.7.1 Outcome variable

- ❖ Decision-delivery interval

### 4.7.2 Independent variables

- ❖ **Socio and demographic characters:** Maternal age, Educational status, Marital status, Place of residence, presence of attendant/family, and employment status
- ❖ **Obstetrics-related characteristics:** ANC follow-up, Presence of previous C/S scar
- ❖ **Indication for cesarean section:** Cord prolapse, NRFHBP, Abruption, CPD
- ❖ **Type of anesthesia:** General, Spinal, Epidural
- ❖ **Surgeon's status:** Senior, Resident
- ❖ **Preoperative and intraoperative time-related factors:** Weekday, Weekend, Day time, Night time, Decision-to-Anesthesia induction time, and Anesthesia-to-Skin incision time

## 4.8 Data Collection Techniques

Information was gathered based up on the pilot study of structured interview administered tools and document review which includes, Socio-demographic characteristics, Obstetrics and medical-related factors, preoperative and intra-operative time-related characteristics, and health professional and type of anesthesia-related characteristics used by the data collectors. The questionnaire was adopted from other similar studies. The data were gathered by eight BSC-trained midwives using a predesigned checklist, while four MSC midwives closely monitored the process and the primary investigator followed them. The procedure was carried out up to necessary information were acquired.

## 4.9 Data Quality Control

A variety of procedures were used to maintain the quality of the data. The goal and importance of the research, how to get the right data, how to use information gathering strategies, how to apply eligibility criteria, as well as the entire questionnaire's items were all covered in a one-day training

session for data collectors and supervisors. The primary investigator obtained the checklist daily from the data gatherers and reviewed it for any mistakes. Then, in accordance, suitable action was taken. The data collectors were overseen at all times, and supervisors, lead investigators, and data collectors frequently spoke over the phone to address issues that came up during the data collection period. At St. Peter Hospital, the questionnaire was pre-tested by taking 10% of the sample size outside the study area, and any necessary adjustments were made in light of the gaps that were found.

#### **4.10 Data Processing and Analysis**

Gathered informations were examined, coded, and entered into Epi Data version 4.6.0.6. After the entry was finished, the data was moved to SPSS version 26 and cleaned before analysis. Descriptive statistics were used to calculate frequencies, percentages, median, and ranges of the variables. The normality of the data distribution was checked by using Shapiro - Wilk test to use the appropriate statistical methods. The association between independent variables and outcome variables was measured by using a logistic regression model. Multicollinearity was tested by using a variable inflation factor and the model fitness was also checked with Hosmer - Lemeshow goodness fit test. Candidates for a multivariate logistic regression model to account for potential confounding variables, examine association, and produce an adjusted odds ratio with their corresponding confidence limits (95% CI) were variables found at the bivariate level and satisfying the assumptions of the binary logistics model. A P-value of 0.05 or less was regarded as statistically significant and the result was put in the form of tables, figures, and narrated into text words.

#### **4.11 Ethical Consideration**

The Addis Ababa University College of Health Sciences, School of Nursing and Midwifery's research review and ethical committee gave its approval for conducting this study. The Addis Ababa Public Health Research and Emergency Management Directorate granted approval in writing for the study to be carried out. The data gatherers explained to each respondent the goals and expected advantages of the study. The willing participants' written consent was obtained. Throughout the course of the study, anonymity and confidentiality were maintained.

## 5. RESULT

### 5.1. Socio-Demographic Characteristics of the Participants

Over all 348 mothers who underwent emergency cesarean section possessing a reaction rate of 98.9% were enrolled. The average age of the mothers was 27.49 years (SD±4.08) with a range of 19-43. Approximately 65% of the respondent's age were found between 25 and 34. Of the total respondents about 296 (66%) and 286 (83.1%) lived in Addis Ababa and had Lower levels of education respectively. Regarding the occupation and marital status of the study participants, 220 (64%) had no work and 336 (97.7%) were married. Around 321 (93.3%) of the respondents had an attendant or family during decision time for ECS.

**Table 2. Socio-demographic characteristics of mothers who underwent ECS in the chosen governmental hospitals of Addis Ababa City, Ethiopia, 2023.**

Variables	Category	Frequency	Percentage(%)
Age	< 25	95	27.6
	25-34	223	64.8
	≥ 35	26	7.6
Residence	Addis Ababa	296	66
	Outside Addis Ababa	48	14
Level of education	Secondary	286	83.1
	Higher education (>12)	58	16.9
Occupation	No work	220	64
	Had work	124	36
Marital Status	Married	336	97.7
	Divorced	8	2.3
Presence of an attendant during decision time	Yes	321	93.3
	No	23	6.7

## **5.2. The Obstetrics and Medical-related characteristics**

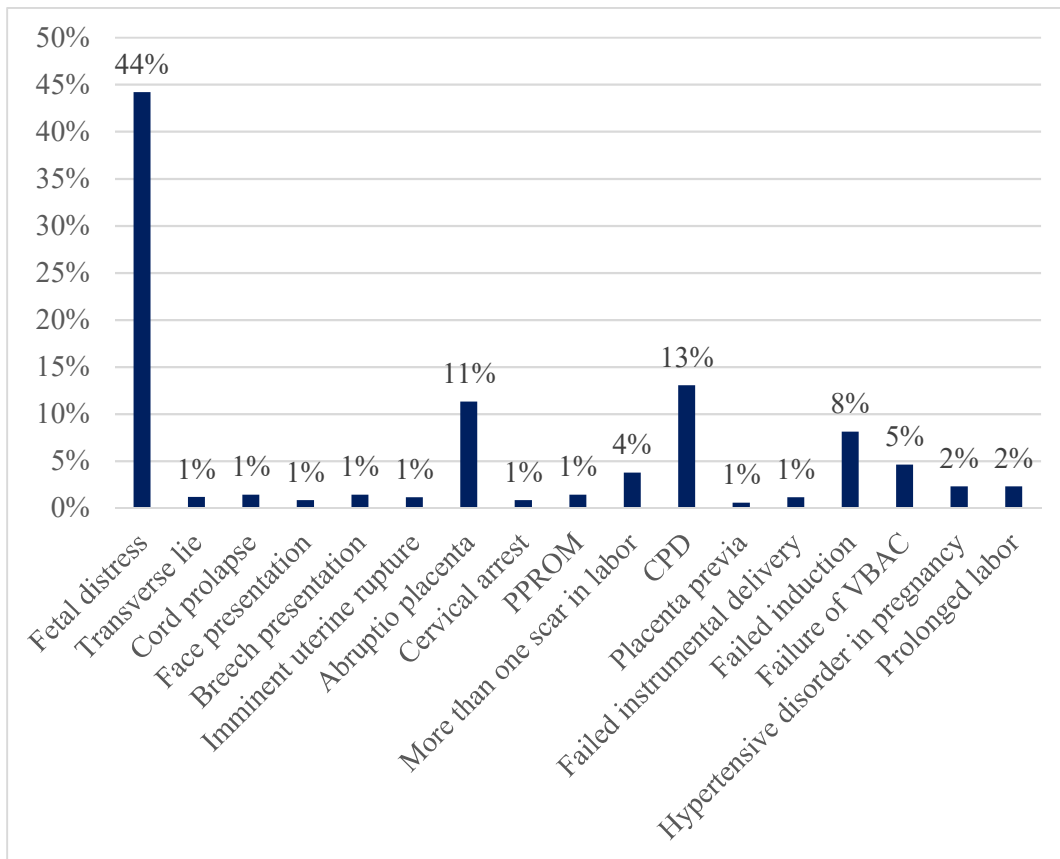
All the study participants had ANC follow-ups. Among those, 10.2% and 4.4% of them developed severe preeclampsia and gestational diabetes respectively during the index pregnancy. The majority of the respondents were multigravida, which covers 60% and 22.96% of them had previous C/S scars. Among the study participants, 81% were term pregnant and referred from other health institutions. Regarding personal behaviors, 27% of the participants were consuming alcohol during the index pregnancy.

**Table 3: The medical and obstetrics characteristics of mothers who underwent ECS in the chosen governmental hospitals of Addis Ababa City, Ethiopia, 2023.**

Variables	Category	Frequency	Percentage(%)
Gestational diabetes	Yes	15	4.4
	No	329	95.6
Anemia	Yes	10	2.9
	No	334	97.1
Hypertension	Yes	10	2.9
	No	334	97.1
Preeclampsia	Yes	35	10.2
	No	309	89.8
Eclampsia	Yes	4	1.2
	No	340	98.8
Renal disease	Yes	6	1.7
	No	338	98.3
Liver disease	Yes	3	0.9
	No	341	99.1
Hyperemesis gravidarum	Yes	6	1.7
	No	338	98.3
Gravidity	Prim gravida	137	39.8
	Multigravida	207	60.2
Antenatal care follow-up during the index pregnancy	Yes	344	100
	No	0	0
Having previous C/S	Yes	79	22.96
	No	265	77.04
Number of C/S	One scar	66	83.5
	Two scar	13	16.5
Gestational age	Preterm	32	9.3
	Term	281	81.7
	Post-term	31	9
Referral	Yes	279	81.1
	No	65	18.9
smoking	Yes	3	0.9
	No	341	99.1
Drinking alcohol	Yes	93	27
	No	251	73
Chewing khat	Yes	4	1.2
	No	340	98.8

### 5.3. Indications for Emergency Cesarean Section

For this study fetal distress, 152 (44%) was the leading indication for emergency cesarean section followed by, cephalic pelvic disproportion (CPD) 45 (13%), placenta abruption 39 (11%), failed induction 28 (8%) and failed VBAC 16 (5%). Other indications less than 5% were a transverse lie, cord prolapse, face presentation, breech presentation, imminent uterine rupture, cervical arrest, PPRM, two scars in labor, placenta Previa, failed instrumental delivery, a hypertensive disorder in pregnancy and prolonged labor.



**Figure 3: Indications for C/S among mothers who underwent ECS in the chosen governmental hospitals of Addis Ababa City, Ethiopia, 2023.**

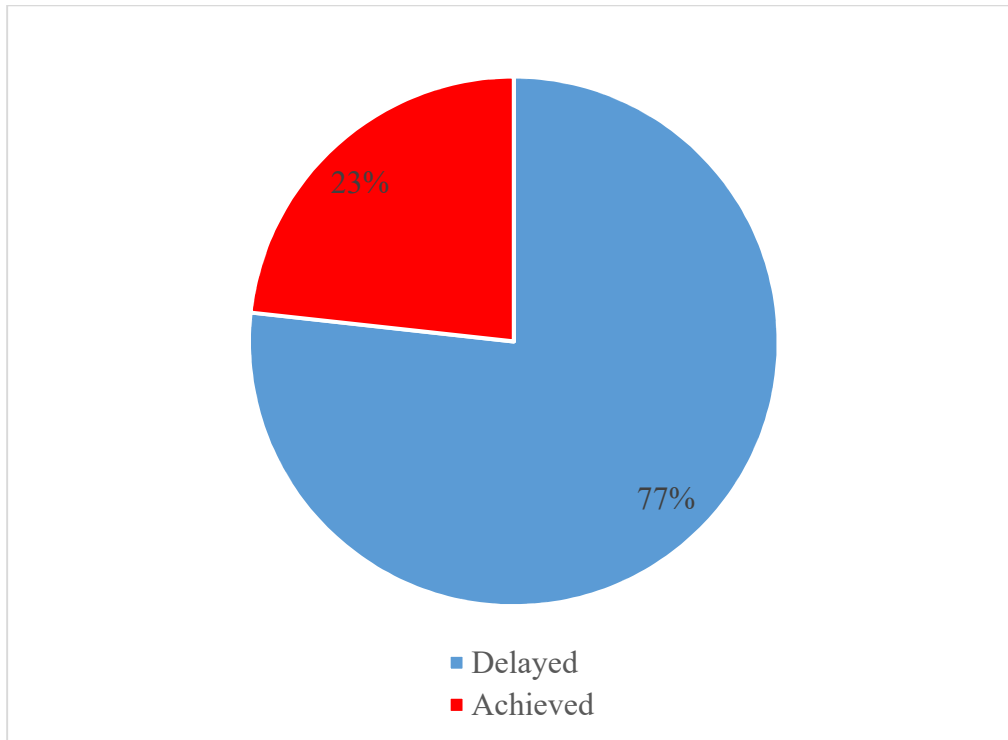
### 5. 4. Pre-operative and Intra-operative time-related characteristics

From the total mothers who underwent emergency cesarean section the time interval from the date and time of decision-to-the arrival of the client in the theater room and immediate starting time of anesthesia induction within 15 minutes was 9%. The time taken from starting of anesthesia induction to starting time of skin incision successfully administered within 10 minutes was 88.7%

and approximately 65% of the operations from starting of skin incision to baby out were performed within 5 minutes. The DDI mothers who underwent crash c/s done within 30 minutes was 23%. The median time of decision-to-anesthesia, anesthesia to skin incision, skin incision to baby out, and decision-to-baby out (DDI) time intervals was 31.5 (1-140) minute, 5(1-29) minute, 4(1-18) minute, 45(7-155) minute respectively. Most of the mothers 243(70%) underwent emergency cesarean section during working days and for approximately 51% of the mothers the decision was made during night time while others (49%) were made during day time.

**Table 4: Pre-operative and intra-operative time-related characteristics of mothers who underwent ECS in the chosen governmental hospitals of Addis Ababa City, Ethiopia, 2023.**

Variables	Category	Frequency	Percentage(%)
Decision-to-Anesthesia induction time interval	≤15 minute	31	9
	>15 minute	313	91
Anesthesia-to-Skin incision time interval	≤10 minute	305	88.7
	>10 minute	39	11.3
Skin incision-to-Baby out time interval	≤5 minute	225	65.4
	>5 minute	119	34.6
Decision-to-Baby out time interval	≤30 minute	80	23
	>30 minute	264	77
Week of ECS done	Working day	243	70.6
	Weekend	101	29.4
The time ECS decided	Day	168	48.8
	Night	176	51.2



**Figure 4: Proportion of Decision-to-Delivery interval among mothers who underwent ECS in the chosen governmental hospitals of Addis Ababa City, Ethiopia,2023**

### **5.5. Health Professional and Anesthesia type-related characteristics**

Most of the mothers 314(91.3%) were anesthetized by spinal anesthesia and the rest of them were given general anesthesia to undertake emergency cesarean section. In the majority, of 297(86.3%) of the study participants who underwent emergency cesarean section, their operation was done by residents whereas in 335(97.4%) participants the anesthesia was given by BSC holder anesthetists.

**Table 5: Health professional and Anesthesia type related characteristics for mothers who underwent ECS in the chosen governmental hospitals of Addis Ababa City, Ethiopia, 2023**

Variables	Category	Frequency	Percentage(%)
Anesthesia type	General	30	8.7
	Spinal	314	91.3
Status of surgeon	Senior	47	13.7
	Resident	297	86.3
Status of anesthetist	BSC holder	335	97.4
	Resident	9	2.6

### 5.6. Factors Associated to Decision- to- Delivery Interval

The binary logistic regression was used to detect the association between the independent and the outcome variables. The relationship between each independent variable was tested by using the variable inflation factor (VIF). The model fitness was also checked with Hosmer-Lemeshow goodness fit test. Bivariable logistic regression was done to see the association crudely between each independent variable with the dependent variable. Those variables fulfill the assumptions of the model entered in the multivariate logistic regression to adjust the confounding and those that had a P - value of less than 0.05 were used as statistically significant. Age, residence, occupation, presence of attendant during decision time, medical and obstetrics complications before or during this pregnancy, gravidity, previous C/S scar, referral status, gestational age, from the time of decision for ECS to starting of anesthesia induction time interval, from starting time of induction of anesthesia to starting of skin incision time interval, skin incision to baby out time, week of ECS done, time of ECS decided and indications for ECS except for fetal distress, marital status and the status of anesthetist were not significant.

Variables associated with bivariate logistic regression were; level of education, drinking alcohol, fetal distress, the status of the surgeon, and the type of anesthesia used. The factors that were significantly associated with multivariate logistic regression on the DDI for ECS were; the status of the surgeon, fetal distress, and the type of anesthesia used.

Resident physicians had approximately 25 [AOR = 25.019;95% CI (10.602-59.037)] times higher odds to delay when compared as senior obstetricians. The odds of urgencies of emergency cesarean section other than fetal distress had approximately 2.8[AOR = 2.775; 95% CI (1.395-5.518)] times greater odd to delay DDI than those mothers whose indications were fetal distress. Spinal anesthesia had approximately 14[AOR = 13.597;95% CI (4.969-37.209)] times higher odds to delay DDI than ketamine.

**Table:6 Factors related with DDI among mothers who underwent ECS in the chosen governmental hospitals of Addis Ababa City, Ethiopia,2023.**

Variables	Category	Decision-to-delivery interval		The odds ratio at 95% CI		
		≤30'	>30'	COR	AOR	P-value
Level of education	Secondary	59	227	1	1	1
	higher	21	37	0.458(0.250-0.84)	0.592(0.264-1.326)	0.202
Drinking alcohol	Yes	29	64	1	1	1
	No	51	200	1.777(1.040 - 3.036)	1.599(0.804- 3.184)	0.181
Surgeon status	Senior	37	10	1	1	1
	Resident	43	254	21.856(10.823- 47.189)	25.019(10.602- 59.037)	0.000**
Fetal distress	Yes	156	36	1	1	1
	No	108	44	1.765(1.066- 2.927)	2.775(1.395- 5.518)	0.004*
Anesthesia type	General	21	9	1	1	1
	Spinal	59	255	10.085(4.395- 23.142)	13.597(4.969- 37.209)	0.000**

**Key:** 1 = reference category, COR =crude odds ratio, AOR = adjusted odds ratio, CI = confidence interval

' = minute \* = P-value < 0.05, \*\* = P-value < 0.001,

## 6. DISCUSSION

The purpose of this study was to assess DDI and evaluate the factors that delay emergency cesarean section in the selected governmental hospitals of Addis Ababa City, Ethiopia, 2023. Of the total of mothers who underwent emergency cesarean section about 23% [ 95% CI (18.9-27.6)] of them were done within the recommended thirty-minute DDI. This result low relative to the international guidelines of recommendation. Therefore, this study gives important information to improve emergency cesarean section in the country, particularly in the study area. It also gives vital role for Addis Ababa City health bureau and health facilities.

This finding is consistent with a systematic review done in low and middle-income countries which were (20%), a prospective cohort study conducted at the University of Gondar Comprehensive Specialized Hospital which was (19.6%), In Gown governmental hospitals which were (20.3%), a study conducted at southern Ethiopia in Gamo zone referral hospitals which was (21%) and a prospective cross-sectional study conducted in Cameroon which was (20%) [16, 17, 33, 51]. The similarity might be due to the weak healthcare infrastructure and inadequate health financing in underdeveloped nations.

The study finding is greater than a retrospective study conducted at south Gondar referral hospitals which were (17.5%), this variance could be the variance in the hospital infrastructure and the number or quality of obstetric care providers [2]. The result is also upper than the study conducted in Nigeria by Bello.et.al,2015 which was 2.1%[15], in Tanzania by Birjna, et.al.2017 which was 12% [41], in Uganda done by Hugus, et.al.2020, which was 0.7%[42] and in Kenya done by Kamotho, et.al.2018, which was 3%[23]. This is justified by the difference in the study area.

The study finding is greatly far from a systematic review done in developed countries which were (79%), the studies conducted in Germany by Brandat, et. al. which was 98.9%, in Sweden done by Hein, et.al which was 92%, in France by Bidone, et.al.which was 90%[28, 38, 40]. These are justified by well-improved facilities and socio-economic development of those parts of the study settings.

The physician's level of experience is a reliable indicator of their adherence to the suggested DDI. In this study ECS done by resident physicians had approximately 25 higher odds to delay the DDI more 30 minutes. This is consistent with the Studies carried out in Norway, Singapore, and

Ethiopia revealed that emergency cesarean deliveries performed by trainee physicians were not achieved within the recommended DDI time [16, 30, 39]. This is because just residents are trainee surgeons they had not well the clinical experience and skills to perform the procedure within a reasonable amount of time.

This study revealed that indications for emergency cesarean section other than fetal distress had 2.8 times more likely for the prolonged DDI. The reason might be due to the fetus's life being endangered and fast delivery is very significant. In addition to this greater number of these indications were performed under ketamine possibly since the system is thought to slog quicker than spinal anesthesia. Similarly, in the study conducted in Thailand and Norway mothers with non-reassuring fetal heartbeat patterns (NRFHBP) had significantly shorter time intervals than those with other indications [31]. On the contrary, studies conducted in India and Nigeria showed that women with cord prolapse but, in Tanzania Cephalic - pelvic Disproportion (CPD) had the shortest DDI time than other indications [15, 29, 41].

The study also showed that the type of anesthesia used had an effect. Spinal anesthesia had approximately 14 times higher odds to delay decision-to-delivery interval than general anesthesia. This is consistent with the studies conducted in Cameroon, Norway, Sweden, Nigeria, and Ethiopia showed that emergency cesarean deliveries performed under general anesthesia were completed within a short decision to delivery time than under spinal anesthesia [9, 16, 33, 39, 40, 45]. The reason might be the client needs resuscitation before giving Spinal anesthesia to prevent hypotension. Another reason might be repeated trial and error to administer spinal anesthesia because it needs the most expert anesthetists to successfully induced than General anesthesia.

## **7. STRENGTHS AND LIMITATIONS OF THE STUDY**

### **7.1 Strength of the study**

- ✓ The result is used to aware and solve those factors that delay decision-to-delivery interval for emergency cesarean section.
- ✓ This finding is used as a pointer of excellence emergency obstetric care in the study area.
- ✓ It also used as an input to develop locally accepted guidelines and protocols in the study area.

### **7.2. Limitations of the study**

- ✓ There was a problem to control some variables in the model.
- ✓ The study did not assess the outcomes
- ✓ The study could not address additional factors for the delay related to other health professional and health institution factors.
- ✓ The tendency of Social-desirability bias.

## **8. CONCLUSION**

Proportion of DDI among mothers who underwent ECS in the selected governmental hospitals of Addis Ababa City achieved within 30 minutes was 23%. This result was very low according to the international recommended DDI for crash c/s. The median and interquartile range of DDI for ECS was 45(7-155) minutes. Fetal asphyxia was the principal indication for this study. Influences that were considerably linked with DDI were; the status of the surgeon, type of anesthesia, and indications other than fetal distress.

## **9. RECOMMENDATION**

### **9.1. For The Health Facilities and Emergency Obstetric Care Providers**

- Hospitals should be fulfilling the accessibilities needed for emergency cesarean section.
- Obstetric care providers also should be well-equipped in the obstetric units and ready for an urgent case.

### **9.3 For Researchers**

- We recommended a prospective follow-up study with a large sample size.
- We also recommended conducting a qualitative study design to explore the perceptions of obstetric care providers

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## 11. ANNEXE

### Annex I: Participant Information Sheet

My name is \_\_\_\_\_ This hospital is one of four being used as research sites, and I am a data collector for this study. The research was conducted by Nigatu Teklie, a graduate student in the nursing and midwifery department at Addis Ababa University's College of Health Science. Please pay attention to me while I briefly describe the study and ask for your consent to participate.

**Purpose of the study:** This study aimed to assess decision-to-delivery interval and associated factors among mothers who underwent emergency cesarean section at selected public hospitals of Addis Ababa city, Ethiopia, 2023.

**Risk:** The technique carries no harm on the body or mind.

**Benefits:** There is no fee for participation. But the result of this research play an important role in policymakers and other responsible bodies as background to improve the obstetrics care related to decision-to-delivery time

**Confidentiality:** We promise to keep all information you provide to us private and confidential. Your information will only be accessible to the main investigator and data collectors. No one will ever use your name. Your provided information will only be used for research.

**Rights:** Your involvement in this study is entirely voluntary. You always have the option to decline, participate, or cease providing information.

You can get in touch with me at the following addresses if you have a query.

**Name:** Nigatu Teklie

**Mobile phone:** +251923117694

**E-mail-** [nigatuteklie12@gmail.com](mailto:nigatuteklie12@gmail.com)

## **Annex II: Informed Consent form**

My understanding of the study's objectives is that they are distinct. For me to take part in the study, the permission form's details have been confirmed. I am aware that my participation in this study is entirely optional, and I can end it at any moment without having to give a reason. I consent to being interviewed as part of this study. By agreeing to participate in the study and signing this consent form, I commit to answer all pertinent questions truthfully, not intentionally give misleading information, or act in any other way that might deceive the researcher.

Signature of the participant's \_\_\_\_\_ date \_\_\_\_\_

Signature of the investigator \_\_\_\_\_ date \_\_\_\_\_

Code \_\_\_\_\_

### Annex III: English version questionnaire

<b>Part - I Question on Socio-Demographic Characteristics</b>				
Date of data collection _____				
S.No	Question	Possible answer	Code	Skip
101	Mother's Age	_____year		
102	Current residence	Addis Ababa	1	
		Outside Addis Ababa	2	
103	Woman's level of education	No education	1	
		Primary (1-8)	2	
		Secondary (9-12)	3	
		Higher (12+)	4	
104	Current occupation	Housewife	1	
		Farmer	2	
		Day laborer	3	
		Private employee	4	
		Government employee	5	
		Student	6	
		Other -----	7	
105	Current marital status	Single	1	
		Married	2	
		Divorced	3	
		Widowed	4	
		Other -----	5	
106	Presence of attendant/family at the time of decision for ECS	Yes	1	
		No	2	
<b>Part II. Obstetrical and medical conditions of the mothers</b>				
201	Serious diseases during the current pregnancy or before (Known or on follow-up or confirmed by Physician)	Pre-existing diabetes	1	
		Gestational diabetes	2	

		Hypertension	3	
		Preeclampsia	4	
		Eclampsia	5	
		Heart Diseases	6	
		Lung disease	7	
		Epilepsy	8	
		Malaria	9	
		Anemia	10	
		Liver disease (jaundice	11	
		Renal disease	12	
		Tuberculosis	13	
		Gynecological diseases	14	
		Hyperemesis	15	
		Other -----	16	
202	Did you have ANC follow-up in your recent pregnancy?	Yes	1	
		No	2	
203	Number of pregnancy	_____		
204	Do you have a previous C/S scar?	Yes	1	If no skip to Q#206
		No	2	
205	Number of previous C/S scare	_____		
206	Are you a referral?	Yes	1	
		No	2	
207	Gestational age in Wks. (from reliable LNMP or early US)	_____ Wks.	1	
		Unknown	2	
208	Did you smoke During pregnancy	Yes	1	
		No	2	
209	Did you drink alcoholic beverages during pregnancy	Yes	1	
		No	2	

210	Did you chew Khat during pregnancy	Yes	1	
		No	2	
211	Indication for ECS (if more than one use an emergent one)	_____		

### Part III: Preoperative and Intra-operative time-related questions

301	Date of decision for ECS (use local time)	_____		
302	Time of decision for ECS (use local time)	_____		
303	Starting time of anesthesia induction (use local time)	_____		
304	From decision time-to-anesthesia induction time interval in minutes (use calculator)	_____ minute		
305	Starting time of skin incision (use local time)	_____		
306	From anesthesia induction time-to-skin incision time interval in minutes (use calculator)	_____ minute		
307	Baby out time (use local time)	_____		
308	From skin incision-to-baby out time interval(use calculator)	_____ minute		
309	From decision time-to-baby out time interval (DDI) (use calculator)	_____ minute		
310	The week of ECS is done	Weekday	1	
		Weekend	2	
311	The duty time of ECS is decided	Day	1	
		Night	2	

### Part IV Professional and Anesthesia type-related questions

401	Type of anesthesia used	General	1	
		Spinal	2	
		Epidural	3	
402	Status of the surgeon	Senior obstetrician	1	
		Resident	2	

403	Status of anesthetist (refer to patient chart)	Bsc holder	1	
		Msc holder	2	
		MSc student	3	
		Resident anesthesiologist	4	
		Senior anesthesiologist	5	

**ቅጽ IV: የተሳታፊዎች መረጃ መስጫ ቅጽ- በአማርኛ**

እንደምን አደሩ/ ዋሉ? \_\_\_\_\_ እባላለሁ። በአዲስ አበባ ዩኒቨርሲቲ፣  
ጤና ሳይንስ ኮሌጅ፣ ነርሲንግና ሚዲካል ትምህርት ክፍል የማስትሬት ዲግሪ ተመራቂ  
ተማሪ በሆነው ንጋቱ ተክሌ በሚያደርገው ጥናት ላይ መረጃ ሰብሳቢ ሆኜ እየሰራሁ ነው።  
: በድንገተኛ የማህጸን ቀዶ ህክምና የማዋለጃ ዘዴ ኦፕሬሽን ለመስራት ከተወሰነበት ልጄ  
እስከተወለደበት ሰዓት ስላለዉ ጊዜና ተያያዥ ጉዳዮች ላይ ጥናት እያደረግን ነው። ጤና  
ተቋም ለወለዱ እና ፍቃደኛ ለሆኑ እናቶች የመረጃ መስጫ እና የስምምነት መግለጫ ቅጽ  
ተዘጋጅቷል። የእርስዎን ታማኝ እና ቀና የሆነ ትብብር ለጥያቄዎቹ መልስ  
እንፈልጋለን።

**ጻፋማ:** ኦፕሬሽን ለመስራት ከተወሰነበት ልጄ እስከተወለደበት ሰዓት ስላለዉ ጊዜና ተያያዥ  
ጉዳዮች ላይ መረጃ መሰብሰብ ነው

**የአሰራር ሂደትና ቆይታ:** ጥናቱ በዚህ ሆስፒታል ላይ ይካሄዳል። ይህ መጠይቅ የጥናቱን  
ተሳታፊ እናት ሥነ-ህዝብ፣ ማህበራዊ እና ኢኮኖሚያዊ ጉዳዮች፣ የእናት የዋን የወሊድ ታሪክ  
እና በድንገተኛ የማህጸን ቀዶ ህክምና የማዋለጃ ዘዴ ኦፕሬሽን ለመስራት ከተወሰነበት ልጄ  
እስከተወለደበት ሰዓት የሚዳስስ ጥያቄዎች አሉት። ቃለ- መጠይቁ 15 ደቂቃዎችን  
ይደስዳል። ስለዚህ ለቃለ- መጠይቁ ይህን ወድ ጊዜዎትን እንዲሰጡኝ በትህትና  
እጠይቃለሁ።

**ስጋት:** በዚህ ጥናት ላይ በመሳተፊዎ ምንም አይነት ጉዳት  
አይደርስበዎትም።

**ጥቅም:** በጥናቱ ላይ በመሳተፍ የተለየ ጥቅም ወይም ክፍያ አያገኙም። የሚሰጡት መረጃ  
ለህግ አውጪው፣ ለሚመለከታቸው አካላት እና በዚህ ሆስፒታል ውስጥ በድንገተኛ  
ቀዶ ህክምና ለሚወልዱ እናቶች አጠቃላይ የወሊዱ አገልግሎት ለማሻሻል እንደ መነሻ ሃሳብ  
(የጥናት ውጤት) ይሆናቸዋል ።

**ሚስጢራዊነት:** በዚህ ጥናት ላይ የሚገኘው መረጃ በሙሉ ሚስጢራዊነት ተጠብቆ  
ይቀመጣል። የእርስዎም መረጃ በፋይል ከእርስዎ ስም ውጪ በኮድ ተደርጎ ይቀመጣል።  
: በተጨማሪም ከጥናቱ ውጪ ለማንም ሰው አይሰጥም።

**በጥናቱ ያለመሳተፍ መብት:** በጥናቱ ያለመሳተፍ ወይም በማንኛውም ጊዜ ራስዎን ከጥናቱ  
የማግለል ሙሉ መብት አለዎት። መልስ መስጠት የማይፈልጉትን ማንኛውንም ጥያቄ  
ያለመመለስ መብት አለዎት። ማንኛውም ጥያቄ ካለዎት በሚከተለው አድራሻ ማግኘት

**ይገኛለሁ፡፡**

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**ቅጽ V: የስምምነት መግለጫ ፎርም- በአማርኛ**

የዚህ ጥናት ዓላማ በደንብ የተብራራልኝ ሲሆን የጥናቱንም ዓላማ ተረድቻለሁ። በዚህ ጥናት ላይ መሳተፍ በሙሉ ፈቃደኝነት ላይ የተመሰረተ መሆኑን በሚገባ የተረዳሁ ሲሆን በማንኛውም ጊዜ ከጥናቱ ራሴን የማግለል መብት እንዳለኝ አውቄአለሁ። ስለሆነም የምሰጠው መረጃ እስከተጠበቀ ድረስ በዚህ ጥናት ለመሳተፍ ተስማምቻለሁ። በዚህ ጥናት ለመሳተፍ ስምምነቴን ስገልፅ ለምጠየቀው ጥያቄ በእውነት ላይ የተመሰረተ መልስ ለመስጠት የተስማማሁ መሆኔን አረጋግጣለሁ።

የተሳታፊው ኮድ \_\_\_\_\_

በጥናቱ ለመሳተፍ ፍቃደኛ ኖዎት?

1. አዎ \_\_\_\_\_ መልሱ አዎ ከሆነ ወደሚቀጥለው ጥያቄ እለፍ/ ፊ

2. የለም \_\_\_\_\_ መልሱ የለም ከሆነ አመስግነህ/ ሽ ጥያቄውን አቋርጥ/ ቄ

የመረጃ ሰጪው ፊርማ \_\_\_\_\_ ቀን \_\_\_\_\_

የመረጃ ሰብሳቢው ፊርማ \_\_\_\_\_ ቀን \_\_\_\_\_

**ቅጽ VI: በአማርኛ የተዘጋጀ መጠይቅ**

<b>መረጃ የተሰበሰበበት ቀን-----</b>			
<b>ክፍል አንድ: ሥነ- ህዝብ፤ ማህበራዊ እና ኢኮኖሚያዊ ጉዳዮችን በተመለከተ የተዘጋጀ መጠይቅ</b>			
<b>ተ.ቁ</b>	<b>መጠይቆች</b>	<b>አማራጭ መልሶች</b>	<b>እለፊ/ፍ</b>
101	እድሜዎ ስንት ነው?	_____ አመት	
102	የት ነው የሚኖሩት ?	1. አዲስ አበባ 2. ከአዲስ አበባ ውጭ	
103	የትምህርት ደረጃዎ ?	1. ያልተማረ 2. አንደኛ ደረጃ (1-8) 3. ሁለተኛ ደረጃ (9-12) 4. ከፍተኛ (12+)	
104	ስራዎ ምንድን ነው?	1. የቤት እመቤት 2. ገበሬ 3. ቀን ሰራተኛ 4. የግል ሰራተኛ 5. የመንግስት ሰራተኛ 6. ተማሪ 7. ሌላ -----	
105	የጋብቻ ሁኔታ?	1. ያላገባች 2. ያገባች 3. የፈታች 4. ባሏ የሞተባት 5. ሌላ -----	
106	አፕራሲዎን እንድሰራልዎት ሲወሰን አስታማሚ/ቤተሰብ አብሮዎት ነበር?	1. አዎን 2. የለም	
<b>ክፍል ሁለት: የሥነ-ተዋልዶ እና ሌላ ህክምናን በተመለከተ ለጥናቱ ተሳታፊዎች የተዘጋጀ መጠይቅ</b>			
201	በዚህ እርግዝና ወይም ከእርግዝና በፊት በህክምና የታወቀ ህመም/ በሽታ ነበረብዎት	1. ከእርግዝና በፊት የተከሰተ የስኳር በሽታ 2. በእርግዝና ወቅት የተከሰተ የስኳር በሽታ 3. የደም ግፊት 4. ፕሪኢክላምሲያ 5. ኢክላምሲያ 6. የልብ በሽታ	

		7. የሚጥል በሽታ 8. ወባ 9. ደም ማነስ 10. ጉበት በሽታ 11. የኩላሊት በሽታ 12. የሳነባ ነቀርሳ በሽታ 13. የማህጸን በሽታ 14. የሳምባ በሽታ 15. ሌላ -----	
202	በእርግዝና ሰዓት የነፍሰጡር ክትትል ነበረሽ?	1. አዎን 2. የለም	
203	ስንተኛ አርግዝናሽ ነው?	-----	
204	ከዚህ በፊት በአፕራሲዎን ወልደሽ ታውቃለሽ ?	1. አዎን 2. የለም	የለም ከሆነ ወደ ቁ. <b>206</b> እለፍ
205	ከዚህ በፊት ስንት አፕራሲዎን/ጠባሳ አለሽ?	-----	
206	ሪፈር ተብለሽ ነው?	1. አዎን 2. የለም	
207	የእርግዝና ወቅት በሳምንት ሲሰላ( ከመጨረሻ የወር አበባ/ከቀዳም አልትራሳውንዲ/ ስንት ነው?	1. _____ ሳምንት 2. አይታወቅም	
208	በእርግዝና ወቅት ሲጃራ ይጠቀሙ ነበር?	1. አዎን 2. የለም	
209	በእርግዝና ወቅት አልኮል ይጠቀሙ ነበር?	1. አዎን 2. የለም	
210	በእርግዝና ወቅት ጫት ይጠቀሙ ነበር?	1. አዎን 2. የለም	
211	አፕራሲን የተሰራቸበት ምክንያት ምን ነበር?		
<b>ክፍል ሶስት: በአፕራሲን ጊዜ እና ከአፕራሲን በፊት ስላለው ሰዓት የሚያጠነጥን መጠይቅ</b>			
301	አፕራሲን ለመስራት የተወሰነበት ቀን (ያገር ውስጥ አቆጣጠር ይጠቀሙ )	-----	

302	አፕሬሽን ለመስራት የተወሰነበት ሰዓት (ያገር ውስጥ አቆጣጠር ይጠቀሙ)	-----	
303	ሰመመን የተጀመረበት ሰዓት (ያገር ውስጥ አቆጣጠር ይጠቀሙ)	_____	
304	አፕሬሽን ለመስራት ከተወሰነበት እስከ ሰመመን እስከተጀመረበት ድረስ ያለው ጊዜ በደቂቃ(ካልኩሌተር ይጠቀሙ)	-----ደቂቃ	
305	አፕሬሽን የተጀመረበት ሰዓት (ያገር ውስጥ አቆጣጠር ይጠቀሙ)	-----	
306	ሰመመን ከተጀመረበት እስከ አፕራሲዎን እስከተጀመረበት ድረስ ያለው ጊዜ በደቂቃ በደቂቃ (ካልኩሌተር ይጠቀሙ)	-----ደቂቃ	
307	ልጅ የተወለደበት ሰዓት (ያገር ውስጥ አቆጣጠር ይጠቀሙ)	-----	
308	አፕሬሽን ከተጀመረበት እስከ ልጅ እስከተወለደበት ያለው ጊዜ በደቂቃ (ካልኩሌተር ይጠቀሙ)	-----ደቂቃ	
309	አፕሬሽን ለመስራት ከተወሰነበት ልጅ እስከተወለደበት ያለው ጊዜ በደቂቃ (ካልኩሌተር ይጠቀሙ)	-----ደቂቃ	
310	አፕሬሽን የተሰራው በአዘቦት ነው ወይስ እሁድ ቅዳሜን?	1. አዘቦት/የስራ ቀን 2. እሁድ/ ቅዳሜ	
311	አፕሬሽን የተወሰነው ቀን ነው ወይስ ማታ?	1. ቀን 2. ማታ	
<b>ክፍል አራት: ከአቅርቦት እና ከሰመመን ጋር የተያያዘ መጠይቅ</b>			
401	የወሰደቸው የማደንዘዥ /ሰመመን/ አይነት	1.ጀኔራል 2. ስፓይናል 3. ኢፒዱራል	
402	አፕራሲዎን የሰራው ሰርጅን የትምህርት ደረጃ	1. ሲነር ሰርጅን 2. ሪዚደንት ሰርጅን	
403	ሰመመን የሰጠው የአንስቲዚያ ባለሙያ የትምህርት ደረጃ	1. ዲግሪ ያለው 2. ማስተርስ ያለው 3. የማስተርስ ተማሪ 4. ሪዚደንት አንስቲዚሎጂስት 5. ሲነር አንስቲዚሎጂስት	

