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St. Paul's Hospital Millennium Medical College

SUCCESS RATE AND FACTORS ASSOCIATED WITH SUCCESS OF VAGINAL BIRTH AFTER ONE PREVIOUS CESAREAN DELIVERY IN ST PAUL'S HOSPITAL MILLENIUM MEDICAL COLLEGE

INVESTIGATOR - DR GASHAW BELETE

A RESEARCH PROPOSAL SUBMITTED TO ST PAUL'S HOSPITAL AND MILLENNIUM MEDICAL COLLEGE, DEPARTMENT OF OBSTETRICS AND GYNECOLOGY IN PARTIAL FULFILLMENT FOR THE REQUIREMENT FOR SPECIALTY CERTIFICATE IN OBSTETRICS AND GYNECOLOGY.

Success rate and factors associated with success of vaginal birth after one previous cesarean delivery in SPHMMC, Addis Ababa, Ethiopia.

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Addis Ababa, Ethiopia

Summary

BACKGROUND: A trial of labor after cesarean section is an attempt to deliver vaginally by women who had a previous cesarean delivery and when achieved by a vaginal delivery it is called successful vaginal delivery after cesarean section. Vaginal birth after cesarean section is a preferred method to decrease complications associated with repeated cesarean section delivery for both mother and fetus. It has a higher success rate when the right women are selected for trial of labor. This study aimed to assess success rate and factors associated with success of vaginal birth after one lower uterine segment transverse cesarean section delivery in SPHMMC Addis Ababa, Ethiopia, 2025.

Objectives: The main objective of this research is to identify success rate and factors associated with vaginal birth after cesarean section in whom previously had one lower uterine segment transverse cesarean section from JANUARY 1 2023 DECEMBER 31 2023 at SPHMMC, Addis Ababa, Ethiopia.

Methodology: Hospital based cross-sectional study will be conducted from 1st may to 31 June 2025. After the minimum sample size is determined using the single population proportion formula and assuming the margin of error to be 5%, with 95% level of significance and adding a 5% none response rate, the sample size will become 216. By using a standardized pre-tested questionnaire, data will be collected and entered using kobotoolbox for analysis and bivariate and a multivariate logistic regression analysis will be conducted to see association of the variables and control confounders. Ethical clearance will be obtained from the ethical clearance board. Confidentiality of the data will be maintained throughout data collection, processing and dissemination on of the results.

Timeline and budget: This research will be conducted from 1st July to 30 Augest 2025.The estimated total budget required to conduct the research will be 37385ETB.

ACKNOWLEDGMENT

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ABBREVIATIONS AND ACRONYMS

ANC	Antenatal Care
AOR	Adjacent Odds Ratio
AUC	Area Under the Curve
CI	Confidence Interval
COR	Crude Odd Ratio
CS	Cesarean Section
TOL	Trial of Labor
TOLAC	Trial Of Labor After Cesarean Section
VBAC	Vaginal Birth After Cesarean Section
RCD	Repeat Cesarean Section
WHO	World Health Organization
LUST	Lower Uterine Segment Transverse
SPHMMC	Saint Paul Hospital Millennium Medical College

1. INTRODUCTION

1.1. BACKGROUND

Cesarean section is a common obstetric operation that can save the life of the mother and fetus(1). It is a major surgical procedure undertaken today in the world and increased dramatically(2). Currently, 18.6% of all births occur by cesarean section (CS), ranging from 6% to 27.2% in the least and most developed regions, respectively(2). Despite the WHO's recommendation of cesarean delivery rate of 10% - 15%, currently one in three (33%) women underwent a caesarean section(2). In the United States, cesarean section (CS) rates increased from 5% of all deliveries in 1970 to a high of 31.9% in 2016(3) . A facility based cross-sectional study was conducted in Dessie town in 2013 and the cesarean section rate was 47.6%(4)

Although efforts were made to reduce the number of CS, it failed to achieve the 15% rate recommended by the World Health Organization (WHO)(3). Both under and overuse of cesarean section equally lead to maternal and perinatal mortality and morbidity(2). Women undergoing cesarean section have a higher morbidity and mortality rate than those having a vaginal birth, such as massive postpartum hemorrhage, need for blood transfusion, anesthesia-associated complications, surgical risks (intestinal obstruction, wound dehiscence, wound scars, infection, etc.), and obstetric complications in subsequent pregnancies(5). Maternal morbidity associated with C-section is five to ten times greater than that associated with vaginal delivery (6).

The continued increase in primary cesarean deliveries for dystocia, failed induction, malpresentation, diabetes mellitus, multiple gestations, the increased practice of cesarean delivery on maternal request; and limited use of a Trial of Labor After Cesarean (TOLAC) delivery due to both safety and medico-legal concerns were among the reasons for the ever-increasing rate of cesarean section worldwide (2). One of the important factors leading to an overall increase of cesarean section rate is the repeated cesarean section for women with a history of previous cesarean section (1).

In recent years the rate of cesarean section has been increasing in Ethiopia. According to the national demographic health survey of Ethiopia, the overall percentage of deliveries attended by the cesarean section was 2%. In Ethiopia, studies have been conducted with an emphasis on cesarean section, however, vaginal birth after previous cesarean section and associated factors

were not adequately studied, therefore this study is aimed to assess factors associated with successful vaginal birth after cesarean section (2).

1.2. Statement of the problem

Recently, with the dramatic increase in the rate of cesarean deliveries worldwide, several attempts have been made to reduce this rate, including trial of labor after cesarean delivery (TOLAC)(7). However, TOLAC has a minimal risk of uterine rupture with a rate of 0.2–0.8%(7), but such a risk can be prevented by close observation and adhering to the standard guideline. Overall, morbidity and mortality rates secondary to TOLAC are less than those of repeated cesarean sections.

Trial of labor after cesarean (TOLAC) is a planned attempt to allow labor in women who have had one previous cesarean birth, regardless of the outcome of the previous cesarean(8). This approach allows women who want a vaginal delivery to achieve that goal—a vaginal birth after cesarean delivery(8). Globally, the trial of labor after cesarean delivery is considered a reasonable, safe option that is highly effective at reducing the overall CS rate and obstetric complications(8). The overall success rate of TOLAC among ACOG's members was 60-80%, resulting when the first cesareans were performed for non-repeating indications (8).

A successful TOLAC is associated with reduced risk of multiple CS, hysterectomy, bladder injury, anesthesia-related complications, reduced abnormal placenta implantation, decreased blood loss, postpartum infections, intra-abdominal adhesion, and deep vein thrombosis, pulmonary embolisms, surgical site infections, helping clear the baby's lungs, and shorter hospital stay(8). It lowers the country's overall CS rate while also reducing maternal morbidity and mortality in the next pregnancy(8). However, failed TOLAC increases the aforementioned maternal morbidity, uterine rupture (less than 1%), and unfavorable perinatal outcomes(8). Predicting the likelihood of successful TOLAC has been clinically important to reduce TOLAC complications(8). The high global cesarean section rate, ranging from 10% to 40%, imposes an economic burden at national and individual levels(9). Due to the increased risk of complications associated with repeated cesarean sections and the safety of vaginal birth after cesarean (VBAC), VBAC has become a preferred strategy(9).

The predictive factors for a successful TOLAC include vaginal delivery before CS, spontaneous onset of labor, history of vaginal birth after CS, favorable cervix (higher Bishop score), fetal station, a non-recurrent indication of previous CS, maternal age less than 40 years, inter-delivery intervals ≥ 18 months, residence, rupture of membranes, fetal weight less than 4 kilograms, gestational age, and singleton pregnancy(8).

Despite TOLAC being practiced in Ethiopia, there is still a need to know more regarding the success rate and contributing factors of the trial of labor after cesarean section specifically in our Institution(10). In Ethiopia, there is limited evidence, particularly in the study area(8). Therefore, in light of the benefits of the success rate of TOLAC, and scarcity of research, the purpose of this study was to determine the success rate and factors associated with TOLAC in mothers who had one lower transverse previous CS.

1.3. JUSTIFICATION OF THE STUDY

A mother's choice of mode of delivery is the most important single factor in offering a trial of labor. Women's expectations for birth and mode of birth preferences are influenced not only by knowledge of the potential benefits and risks but also by demographic, obstetrical, and social factors(11). This knowledge would help while counseling mothers for VBAC.

The crucial questions are how to reliably predict successful vaginal birth after Caesarean section, and how to determine and quantify the magnitude of the risk of failure that is acceptable to women. Many studies have addressed methods for identifying women at low and high risk of failure of an attempted vaginal birth after a prior cesarean but none of them have resulted in a validated result(11). Even those factors found to be associated with successful VBAC vary from center to center. Currently, therefore, there is no single validated tool that holds true for all to predict successful vaginal birth among women with a prior cesarean delivery.

The purpose of the study is to identify maternal demographic, and past and present obstetric determinants of success of TOLAC in SPHMMC, Addis Ababa, Ethiopia. This is of great help for physicians in the joint physician-patient decision while offering TOLAC.

2. Literature review

A health facility-based retrospective cross-sectional study was conducted from March 1 to 15/2021, in Bahir dar, Ethiopia. A medical record review of 408 women charts was done(6). The study identified that the trial of labor after cesarean section rate was 69.5%, and the success rate of vaginal birth after one lower uterine transverse cesarean section was 35.07%(6). Of the failed trial of labor, fetal distress (38.9%) and failed progress of labor (32.1%) were the main indications for an emergency cesarean section(6). The maternal age group of 21–30 years, prior vaginal birth after or before cesarean section, non-recurring indication (fetal distress and malpresentation), ruptured membrane, cervical dilatation ≥ 4 cm, cervical effacement ≥ 50%, and low station (≥ 0) at admission were associated with successful vaginal birth after one lower uterine transverse cesarean section(6).

Facility based retrospective cross-sectional study was done at Attat Catholic Hospital, Ethiopia(7). Successful VBAC was observed in 45.5% which was relatively lower than the standard 60-80%. Passage of liquor at admission, history of vaginal birth after cesarean section, cervical dilation at admission >4 cm and indication (NRFHR) for a previous cesarean section were significant factors associated with success of VBAC(7).

A cross-sectional survey in three teaching hospitals of Addis Ababa University showed that success of VBAC is 69.4%. Prior VBAC, prepregnancy BMI, fetal membrane status, and fetal station at admission were predictors of VBAC(8).

A retrospective cohort study was conducted a tertiary teaching hospital in Thailand(3). 592 singleton pregnancies with a previous single low-transverse

cesarean section undergo TOLAC and simple audit system was used(3). Among them, 355 (60%) had a successful vaginal birth and 237 (40%) had a failed TOLAC(3). The independent factors associated with the success rate included the audit system, prior vaginal birth, low maternal BMI, and lower birth weight or gestational age, whereas induction of labor and recurring indications in previous pregnancy significantly increased the risk of having a failed TOLAC(3). Strikingly, the strongest predictor of a successful TOLAC was the audit system with OR of 6.4 (95%CI: 3.9-10.44), followed by a history of vaginal birth in previous pregnancies (OR: 3.2; 95%CI: 1.87-5.36)(3).

A systematic review and meta-analysis done in sun-yet son university in china(2). They included 94 eligible observational studies (239,006 pregnant women with 163,502 VBAC)(2). Factors were associated with successful VBAC with the following odds ratios (OR;95%CI). Diabetes, HDCP, Bishop score, labor induction, macrosomia, age, obesity, previous vaginal birth, and the indications for the previous CS should be considered as the factors affecting the success of VBAC(2).

British figures indicate that among women with a prior cesarean section, 33% will successfully achieve vaginal birth in the subsequent pregnancy(7). Again there was considerable variation across institutions ranging from 6% to 64%(7). One study in Lahore reported successful vaginal delivery in 70% of the patients and repeat emergency cesarean section in 30% of the patients(7). The leading indications for the repeat cesarean sections were: failure to progress, fetal distress and scar tenderness. There were no maternal and fetal complications occurred. They concluded that VBAC is a safe practice(7).

Prospective observational study was done in United Kingdom(9). About 500 pregnant women with previous one lower segment CS were included in the study, 83% achieved with successful (VBAC), and 17 % ended with failed trial of labor after cesarean section (TOLAC)(9). Previous vaginal delivery is significantly associated with success of VBAC (58%)(9). success rate of VBAC is high and TOLAC is safe for most of pregnant women who attempt to deliver vaginally after one CS. Successful VBAC may help in decision making and contribute to a reduction in cesarean delivery rates and reduce maternal morbidity and mortality associated with repeated CS(9).

A case control study was conducted to compare the factors associated with successful VBAC in teaching hospitals in Addis Ababa in one year period(5). Independent factors determining successful VBAC were, history of successful VBAC in the past, rupture of membrane at admission, and cervical dilatation of more than 3cm at admission(5). Presence of meconium, malposition and history of stillbirth were associated with failed VBAC(5). Factors like maternal age, past caesarean indications, inter delivery interval, and birth weight were not found to be significant determinants of success(5).

CONCEPTUAL FRAMEWORK

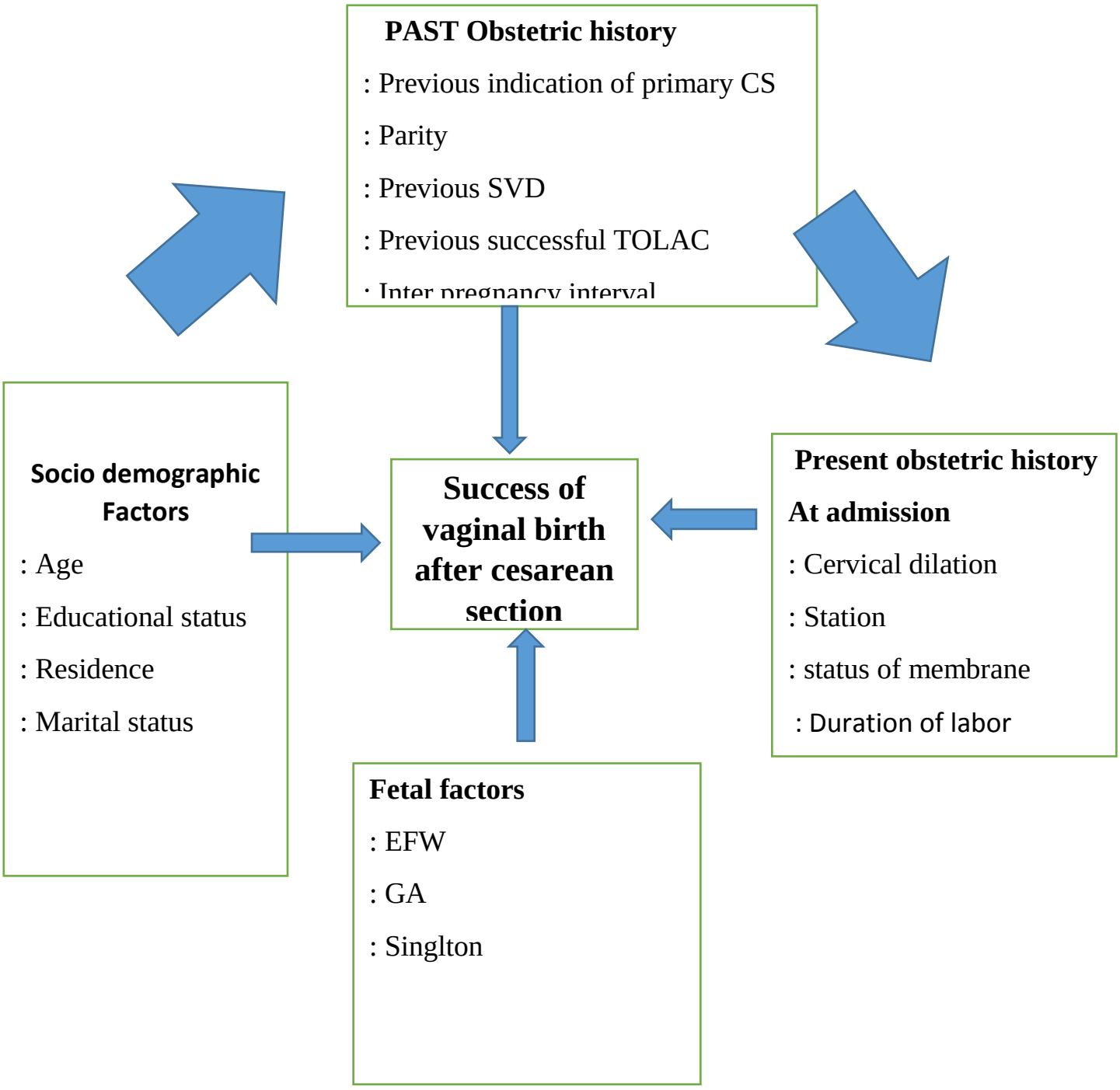


Figure 1 Conceptual framework

3. Objectives

3.1 General objective

- To identify success rate and factors associated with vaginal birth after cesarean section in whom previously had one LUST cesarean section

3.2 Specific objectives

- To identify the success of the vaginal birth rate of pregnant women who previously had one LUST cesarean section.
- To assess the factors associated with a successful vaginal delivery after one LUST cesarean section.

4. Methods and Materials

4.1 STUDY SETTING

The study will be conducted at SPHMMC considering the high flow of patients. It is located in Addis Ababa, Ethiopia. The SPHMMC offers undergraduate, masters, specialty and subspecialty programs. SPHMMC is a center in which Trial of labor, cesarean section, vaginal birth after cesarean section, and evaluations are being performed by residents, gynecologists, and subspecialists.

4.2 STUDY PERIOD

The study will be conducted from 1st JUNE to 31 AUGEST, 2025

4.3 STUDY DESIGN

Hospital based cross sectional study will be employed.

4.4 SOURCE POPULATION

All medical charts of registered women who had one previous cesarean section delivery and underwent trial of labor from January 1 2023 to December 31 2023 at SPHMMC.

4.5 Study population

All randomly selected medical charts of registered women who had one previous cesarean section delivery and underwent trial of labor from January 1 2023 to December 31 2023 at SPHMMC.

4.6 Eligibility criteria

INCLUSION CRITERIA

- Medical charts of registered women with one low transverse previous incision in the uterus, Gestational age ≥28 weeks, Singleton pregnancy, Cephalic presentation, physician documentation as opted for TOLAC.

EXCLUSION CRITERIA

- Medical charts of registered women with, previous history of myomectomy scar, and women's charts with incomplete maternal or fetal information (such as GA of the fetus, birth weight, position of the resenting part and cervical status at admission) will be excluded.

4.7 Sample size

The sample size is calculated using a single population proportion formula by considering the following assumptions: the proportion of successful VBAC in a teaching hospital of Addis Ababa University was 69.4%40, Zα/2=critical value for normal distribution at 95% confidence level, which is equal to 1.96 (Z value of alpha at=0.05) or 5% level of significance (α=0.05) and a 5% margin of error (d=0.05). The calculated sample size is 326 but, since the total population for this research is less than 10,000, we should use correction formula and becomes 180. Taking a 5% contingency (non-response rate) which is 36, the final sample size became 216.

$$n = \frac{(Z\ \alpha/2)\ 2\ p\ (1-p)}{d2}$$

Where: -

N= Total Population size (400)

n = calculated sample size

Z = Confidence interval [95%]

p =0.694

d2 = marginal error [5%]

$$n^* = \frac{(1.96)\ 2 \times 0.5\ [1-0.5]}{(0.05)2} = 326$$

Correction = nf=no/1+no/N=180

4.8 SAMPLING PROCEDURE

The primary sources of the data will be the paper based admission delivery registration log books, where the card numbers of women admitted with one previous LUTCS opted for TOLAC will be traced. Then the card numbers will be listed out and used as a sampling frame, and from it by using systematic random sampling sample will be taken.

A systematic random sampling will be used among all medical charts of registered women who had one previous cesarean section delivery and underwent TOLAC from JANUARY 1 2023 DECEMBER 31 2023 AT SPHMMC

4.9 VARIABLES IN THE STUDY

Dependent variables

- Success of vaginal birth after cesarean section

Independent variables

Sociodemographic Factors

Age

Gender

Marital status

Residence, educational status

obstetric and fetal factors (parity, an indication of primary CS, inter-delivery interval, prior successful TOLAC, prior vaginal delivery, duration of labor, the status of the membrane at admission, and duration of rupture, cervical dilatation, and effacement at admission, fetal station, gestational age, mode of delivery, an indication of repeated emergency CS, and birth weight).

4.91 DATA SOURCE

The data used is secondary data which is retrieved by tools which was constructed by the researcher after reviewing related literature's from HCWs who are actively involved in clinical activity.

4.92 Data collection, entry and quality assurance

Data will be collected from medical charts after tracing patients card numbers using a structured questionnaire prepared in English. The questionnaire will have Three parts: (1) sociodemographic factors, (2) past obstetric history, (3) present obstetric history and fetal factors. Two supervisors and four data collectors will be involved in the data collection process all of whom are senior nurses from the OBGYN department of SPHMMC. The data collection questionnaire will be assessed by an OBGYN specialist for clarity and comprehensiveness of contents. Pilot study will be employed on 5% of randomly selected HCWs in other hospital and

all the necessary modifications will be included in the final data collection questionnaire. The quality of data will be assured by proper designing and pre-testing of the questionnaire and by giving training for the data collectors and supervisors before the actual data collection. Appropriate modifications will be made after viewing the pre-test result and overall supervision will be made by the principal investigator.

Every day after data collection, the quetionairre will be reviewed and checked for completeness, accuracy and clarity by the supervisors and principal investigator and the necessary correction will be given to data collectors in the following morning.

4.93 Data analysis procedures

The extracted data will be entered and checked using kobotoolbox for analysis. Frequencies, proportions and descriptive statistics will be used to explain the study population with the relevant variables. Binary logistic regression will be used to analyze factors that affect the outcome variables. Variables with p- value < 0.2 with bivariable analysis will be included to multivariable analysis. Explanatory variables which have p-value < 0.05 in multivariable analysis will be identified as a significant factor affecting the outcome variable with 95% confidence level.

4.94 Operational definition

1. **Cesarean section:** means delivery of the fetus, membrane, and placenta after 28 weeks of gestation by the opening of the abdomen and uterus

2. **Trial of labor after cesarean section:** Attempt to deliver vaginally by a woman who had previous cesarean delivery, irrespective of the outcome.

3. **Opted for TOLAC**: refers to women with one previous LUTCS scar, singleton pregnancy, cephalic presentation, term pregnancy, no contraindications for vaginal delivery, documented and signed written informed consent for TOLAC.

4. **Station**: refer to the location of the fetal head's lowermost portion in the pelvic canal in relation to the ischial spines, or indicate the degree of engagement of the presenting part. The stations above and below the ischial spine were categorized as the high (< 0) and low (≥ 0) in pelvic examination.

5. **Gestational age**: is calculated from the last normal menstrual period or fungal height that was documented on the card, if not from the duration of amenorrhea documented from mothers recall, and is rounded to the nearest week. Amenorrhea of 9 months was taken as 37–416/7 weeks gestation for all mothers.

6**. Elective repeat cesarean section**: cesarean section done at a scheduled time for delivery before onset of labor in presence of previous CS.

7. **Successful TOLAC**: a vaginal delivery (spontaneous or assisted/instrumental) in a woman who had previous one-LUTCS.

8. **Failed TOLAC**: defined as failure to achieve a vaginal birth after a previous one-LUTCS delivery, undergoing a TOLAC, and the delivery ending by an emergency RCD.

4.95 Ethical considerations and consent

The study will be conducted after ethical approval letter is secured from research committee of the OBGYN department as well as institutional review board of the College and will be conducted according to the institutional and ethical rules concerning research. The information obtained from the chart is kept strictly confidential.

4.96 Method of dissemination

The result of the study will be made available to the SPHMMC, OBGYN department and Federal Ministry of Health and other stake holders.

Although health professionals in the OBGYN department are the main recipients of any new findings, the study will also be available to other health care providers, we will emphasize a need to develop a well-defined management protocol to increase the number of successful TOLACs and bring down the overall CS rate, which ultimately decreases surgery related

complications. There will be attempts to publish outcome of this study in relevant national and international journals.

5. WORK PLAN

Table 1: WORK PLAN

	TASKS TO BE PERFORMED	RESPONSIBLE PERSON	TIME PERIOD				
			Augest-October,2024		May -september,2025		
1	Preparation of research proposal	PI	Aug13-Sept10				
2	Accommodation of comments	Advisor + PI	Sept15-13				
3	Submission of proposal	PI	Sept13-14				
4	Collection of budgets	SPHMMC+ PI					
5	Obtain ethical clearance and permission	SPHMMC+ PI		Oct15-19			
6	Preparation of research tools	PI		Oct20-21			
7	Pretest study	PI		Oct 24-25			
8	Data collection	Nurses			May1-june31		
9	Data entry and cleaning	PI and data clerk				July10-30	
10	Data analysis	PI					Aug10-20
11	Draft and finalize the thesis	PI					Sep1-15
12	Accommodation of comments	Advisor + PI					
13	Submitting final report	PI					Sep 30

6. ESTIMATED COST OF THE RESEARCH

Table 2Estimated cost of the research

	BUDGET CATEGORY	UNIT COST	MULTIPLYING FACTOR	TOTAL COST (BIRR)
1	**PERSONNEL**	DAILY WAGE	NO of staff days(no of staff x no of working days)	
	Supervisor	550	2x8	8800
	Data collectors	350	5x8	14000
	Data entry clerk	250	2x3	1500
	Secretarial work	200	2x3	1200
			Personnel TOTAL	**25500**
2	**TRANSPORT**	COST PER Km.	Number of travelers (No. of travelers*No. of days*No. of Km)	
	Car	2 Birr	10x20x10	4000
			Transport TOTAL	**4000**
3	**SUPPLIES**	COST PER ITEM	NUMBER	
	Questionnaire copy	2 Birr per page	500	1000
	Clip board	200birr	6	1200
	Flip chart paper	25 birr	5	100
	Pen	10 birr	12	120
	Printing paper (pack)	250birr	4	1000
	Photocopying cost	2birr	500	1000
	Printing	3 birr	125	250
	Binding	20birr	2	40
			Supplies TOTAL	**4710**
4	**MEETING & COMMUNICATION**	COST PER ITEM	NUMBER OF DAYS	
	Mobile air time	25 birr/participant 25x11=275	3	725
	Tea/coffee	20birr/participant/day 20x11=220	5	1100
			Meeting & Communication TOTAL	**1825**
5	**CONTINGENCY FUND**			
	5% of TOTAL budget			**1350**
			GRAND TOTAL	**37385**

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Information sheet

Title of the research project: Factors Associated with Successful vaginal delivery after one previous Cesarean section in SPHMMC,Addis Ababa Ethiopia, 2024

Name of the principal investigator: Dr. Gashaw Belete (OB/GYN resident)
Name of the organization: SPHMMC, department of OB/GYN.
Purpose of research project: the aim of the study is to assess success rate and factors associated with vaginal birth after cesarean section in whom previously had one LUST cesarean section in SPHMMC.
Procedure: Pretested questionnaire is being prepared and a medical chart of women who had one previous cesarean section and allowed for TOLAC in SPHMMC will be involved for the study. Since they fulfill the criteria, they are selected to be one of the study participants. The chart will be reviewed by the trained BSC midwifes and the investigator.
Confidentiality: The information which is collected in the research will be strongly kept confidentially. Which will not have your name on it but the code number will assign to it. And you have the right to refuse from participation. But your honest participation will have contribution to generate valid information that will be used for intervention designs.
Benefits: There is no direct benefit to you in participating in this study but it helps us in assessing the success rate and factors associated with vaginal birth after cesarean section in whom previously had one LUST cesarean section in SPHMMC and to identify gaps.
Incentive/payment for participating: you will not be proved any incentives or payment to take part in this project.
Risk and/or Discomfort: by participating in this research project you may feel that it has some risks or discomfort but there is no a major risk or discomfort. The chart review will only take 10 –15 minutes/chart.
Persons to contact: This research project was reviewed and approved by the institutional review board of SPHMMC. If you want to know more information, you can contact the individual and you may ask at any time
you want.
1. Dr. Gashaw Belete (OB/GYN Resident)
Cell phone: +251931547857
E – Mail: gashawbelete100@gmail.com

Consent form

Study questionnaire on success rate and factors associated with vaginal birth after cesarean section in whom previously had one LUST cesarean section in SPHMMC, A.A, Ethiopia

Good morning/good afternoon

My name is ----------, I work for ----------

You may have been already informed that a survey on success rate and factors associated with vaginal birth after cesarean section in whom previously had one LUST cesarean section in SPHMMC, A.A, Ethiopia

This study has been approved by the institutional review board of SPHMMC. Only anonymous data will be analyzed. The information which is collected in the research will be strongly kept confidentially. Which will not have your name on it but the code number will be assigned to it. I request you to take part in this study. Your participation is voluntary. If you are willing to participate sign the agreement form. It is possible to stop the review at any time during the review process. But your honest participation will have contribution to generate valid information that will be used for intervention designs.You will have some orientation about how to fill the questionnaire. The review is about 10 – 15 minutes/chart long.

Signature_____ ***Date***_____

Thanks for your agreement.

English version questionnaire:

This questionnaire has 4 parts which are Questioner identification, the Socio-demographic characteristics, past obstetric characterstics, and present obstetric characterstics. Please strictly follow instruction for each part and try your best to respond to every question accordingly.

Section 0: Questioner identification

001-Date_____/_____/_____
002 Name of institution/ Hospital _____
003- Institution type: public
004-reviewer Name_____ Sign_____ date_____
005- Result of the interview (please circle it):
1. Completed 2. Incomplete
006- Checked by:
Supervisor Name_____ Sign_____ date_____

Section1. ***Socio-demographic and socio-economic Characteristics***

Numbers	Questions	Alternatives	Remark
101	How old are you? In complete years	<25……1 25-35……2 >35……3	Medical record
102	Where is your residence?	Urban ……..1 Rural ..……..2	Medical record
103	Your marital status?	Single……1 Married……..2 Divorced……3 Widowed ……..4	Medical record
104	Educational status?	Not educated……1 Primary…….....2 Secondary…….3 College and above.....4	Medical record
105	What is your current occupational status?	Government employee….1 Merchant…….2 House wife……..3 Student……4 Others(specify)……...5	Medical record

Section2. Past obstetric characterstics

Numbers	Questions	Alternatives	remark
201	Parity	I……1 II…….2 II-IV……3 Above IV…4	Medical record
202	History of still birth	Yes …….1 No ……2	Medical record
203	GA in weeks	Preterm……1 Term……..2 Post term…..3 Unknown……4	Medical record
204	Vaginal birth before C/S	Yes……...1 No…….2	Medical record
205	Vaginal birth after C/S	Yes……...1 No…….2	Medical record

Section3. present obstetric characterstics

Numbers	Questions	Alternatives	Remark
301	Do you have ANC follow ups	Yes……..1 No……2	Medical record
302	Number of ANC Contacts	<4……1 4……2 >4……3	Medical record
303	GA in weeks	<40……1 40……2 >40……3 Unknown……4	Medical record
304	Cervical dilatation at admission in cm	<4……1 >4……2	Medical record
305	Position of the presenting part	OA……..1 OP……..2 OT……..3 UKNOWN…….4	Medical record
306	ROM at admission	Yes……..1 No……..2	Medical record
307	Duration of ROM	<12 hrs…….1 >12 hrs…….2	Medical record
308	Presence of meconium	Yes ……..1 No……2	Medical record
309	Duration of LABOR	<18 hrs……..1 >18 hrs……..2	Medical record
310	Mode of delivery	VBAC…….1 Repeat C/S…….2	Medical record
311	If cesarean delivery, primary indication for C/S	NRFHRP……..1 CPD……..2 Uterine dehiscence/rupture..3 Cord prolapse……4 Others……1	Medical record
312	Birth weight in KG	<2.5……1 2.5-3.9……2 >=4……..3	Medical record

Thank you for participating, you have come to the end.

8. Assurance of Principal Investigator

I, the undersigned agree to accept all responsibilities for the scientific and ethical conduct of the research project. I will provide a timely progress report to my advisor and seek the necessary advice and approval from my primary advisors during the research. I will communicate timely to my advisors and all stakeholders involved in the study including any source of funding for this research.

Name of the student: _____

Signature: _____

Date: _____

APPROVAL OF THE PRIMARY ADVISOR

Name of the primary advisor: _____

Signature: _____

Date: _____

APPROVAL OF THE CO-ADVISOR

Name of the primary advisor: _____

Signature: _____

Date: _____