ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCE, SCHOOL OF MEDICINE, TIKUR ANBESSA SPECIALIZED HOSPITAL

PREFERENCE OF SPINAL VERSUS GENERAL ANESTHESIA AND ASSOCIATED FACTORS AMONG PREGNANT WOMEN UNDERGOING ELECTIVE C/S AT TIKUR ANBESSA SPECIALIZED HOSPITAL, ADDIS ABABA, ETHIOPIA, 2021

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STATEMENT OF DECLARATION

I hereby declare and affirm that this research is my own original work as a partial fulfillment of the requirement for the speciality certificate training in Anesthesiology, Critical Care and Pain Medicine. I have followed all the ethical consideration in the preparation, data collection, data analysis and completion of this research. All the sources of the material used for this research and all people and institution who gave support for this work are fully acknowledged. I have sited and referenced all the sources used in this research document.

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Abbreviations and Acronyms

ACCPM - Anesthesiology, Critical Care and Pain Medicine

CRVHD – Chronic Rheumatic Valvular Heart Disease

C/S – Cesarean Section

GA – General Anesthesia

GDM – Gestational Diabetes Mellitus

GMH - Gandhi Memorial Hospital

SA – Spinal Anesthesia

SPSS –Statistical Package for the Social Science

TASH – Tikur Anbessa Specialized Hospital

T2DM – Type two Diabetes Mellitus

WHO – World Health Organization

Abstract

Background: Cesarean section is mainly done under SA or GA. When used appropriately spinal anesthesia has many benefits. Client preference determine the mode of anesthesia to be given for cesarean section. In Ethiopia, the rate of spinal anesthesia for cesarean section is less than that of developed world. There was no study that reported the womens' preferences of anesthesia mode and factors affecting their preferences in Tikur Anbessa Specialized Hospital.

Objective: To assess factors associated with womens' preferences of anesthesia type for elective C/S at TASH

Method: Institutional based prospective Cross-sectional study design was conducted on 200 clients who were scheduled for elective C/S at TASH, in Addis Ababa. This study was conducted from April 1 to September 30, 2021. Systematic random sampling technique was used to select the clients. Structured questionnaire was used to collect the data. Data was checked for completeness and entered into Epi-data version 4.6 then imported to SPSS 25 software for analysis. Descriptive analysis was done for Socio-demographic and clinical characteristics of the participants. Bi-variate logistic regression was done for each predictor variable and outcome variable. Multivariate logistic regression was done and statistical significance p-value less than 0.05 was taken as a determinant factor.

Results: Overall spinal anesthesia preference rate is about 90 %, while general anesthesia preference rate is 10 %. Clients with no previous anesthesia exposure are high likely to prefer spinal anesthesia as compared to those who previously took anesthesia ($p = 0.028$ AOR 4.94(1.19, 20.54). Multivariate logistic regression showed that literate women are high likely to prefer spinal anesthesia as compared to illiterate women ($p < 0.001$ AOR 19.9(4.58, 87.27). There is no association found with age, parity, previous mode of delivery, previous information about anesthesia, employment status, partners preference and feared anesthesia related complications.

Conclusion: Majority of clients (90%) who were scheduled for elective c/s prefer spinal anesthesia in TASH. Educational level and lack of previous anesthesia exposure are found to be associated with anesthesia mode preference.

CHAPTER1. Introduction

1.1 Background

General and regional anesthesia modes are the choices that are available for elective and emergency cesarean section. During general anesthesia, the anesthesia provider uses different groups of drugs to anesthetize the pregnant women. These drugs can lead to different complications and potentially dangerous if not used properly. So, the appropriate mode of anesthesia should be done based on the factors that will possibly lower the patient's morbidity and mortality.

Spinal anesthesia mode uses specific local anesthesia intrathecally for the cesarean delivery to anesthetize parts of the body below umbilicus. Spinal anesthesia as compared to general anesthesia shortens hospital stay after surgery and fastens return of gastro-enteral functions in patient who underwent elective C/S (1). Due to low morbidity and mortality rates associated with its use, spinal anesthesia is more frequently used nowadays (1–4).

Medical indications /contraindications and patient preference determine the type of anesthesia to be given for cesarean section. Study done to evaluate maternal satisfaction with spinal anesthesia showed high satisfaction rate of (97%). A study done at Gondar University showed that anesthesia technique was associated with low satisfaction rate among women who took anesthesia for cesarean section. General anesthesia was associated with low maternal satisfaction rate (p value 0.046). Clients refuse spinal anesthesia due to the fear of surgical pain, anesthesia related side effects and being awake during the procedure (5–7)

More than 30 % of deliveries are through cesarean delivery under spinal and general anesthesia in Ethiopia. Among these less than 70% of them undergo spinal anesthesia. In developed world more than 90 % of cesarean delivery is done under spinal anesthesia (8–10)

The choice of regional or general anesthesia is influenced by variety of factors with regard to pregnant lady who undergo cesarean section (11–13). Based on those finding, this research tries to assess factors that influence the preference of anesthesia mode by pregnant women for elective cesarean section at Tikur Anbessa Specialized hospital.

1.2 Statement of the Problem

Women who prefer general anesthesia than regional anesthesia are those who don't want to see or remember everything about the procedure. Women who can't read and write, age less than 20 years and who had previous anesthesia exposure prefer general anesthesia (5,14,15)

Cesarean section rate in Ethiopia is increasing. The proportion of spinal anesthesia for cesarean section is lower than that of developed countries. A study done in Ghandi Memorial Hospital in 2013 showed that the rate of spinal anesthesia for cesarean section was 58%. Knowing factors associated with the preference of regional anesthesia is important to increase the rate of spinal anesthesia for elective cesarean section. Women preference of spinal anesthesia for cesarean section was minimal. In a study done in Jimma University showed that only 23% prefer spinal anesthesia for cesarean section (8,11,14,16).

So, studying factors associated with the preference of one mode of anesthesia (GA vs SA) over the other by pregnant women for elective C/S is important.

1.3 Significance of the Study

In developed world most of the cesarean section are done under spinal anesthesia and few are done under general anesthesia. In Ethiopia, there are studies which showed knowledge, attitude and maternal satisfaction rate regarding anesthesia mode for cesarean section(5,14). However, factors that lead to prefer one mode of anesthesia over the other aren't studied in TASH.

The aim of this research is to show the rate of spinal anesthesia and general anesthesia and determine factors associated with the preference of anesthesia mode for elective C/S. So, the results of this study will help health care professionals to understand client's perspective and determinants of anesthesia mode preference. In addition, it will help them to initiate appropriate interventions to increase the proportion of spinal anesthesia based on associated factors.

CHAPTER 2. LITERATURE REVIEW

2.1. Caesarean Section Rates in Developed Countries

In United States, Menacker and Hamilton studied trends in caesarean section rates between 1996 and 2008 reported that the caesarean section rate rose to 32.3% in 2008 from 20.7% in 1996, marking a 12th consecutive year of increase. Caesarean section rate varies from 25% to 38% in this country. In New South Wales, Australia caesarean section rate increased from 19.1% in 1998 to 29.5% in 2008. In Canada, the caesarean section rate increased from 6% in 1970 to 26% in 2006 (17)

2.2 Caesarean Section Rates in Developing Countries

In poor, developing countries, access to health service is limited and caesarean section rates are low. In a retrospective analysis of data from 42 countries in sub-Saharan Africa, Asia, Latin America and the Caribbean carried out in 2006 found extremely low caesarean section rate. The poorest 20% of the population in 20 countries had Caesarean section rate below one percent implying very limited access to Caesarean sections. Other researcher had similar finding and suggested that caesarean section rate of at least 3.6%- 6.5% is needed to address basic obstetric complications in West Africa(18,19).

In Ethiopia, where cesarean section rates were low, the government has attempted to improve access to care by training non-physician health care providers to perform caesarean sections (20). In recent years, a significant increase has been seen in the prevalence of cesarean section. A study done at two teaching hospitals in Addis Ababa showed that the rate of cesarean section was 32 %(9).

2.3 Factors Associated with Selection of Anesthesia Mode for Cesarean Section

A study done in Turkey showed that, 58% of women scheduled for elective cesarean section prefer GA. The main reasons were fear of pain, anxiety and lack of trust on regional anesthesia. Thirty percent of them prefer regional anesthesia. Factors that influence their preference were previous anesthesia experience, physician recommendation, the need to avoid GA and remain awake. The rest of them (12%) had no specific preference (21).

Previously most of obstetric clients who undergo elective C/S were unaware of the available anesthesia techniques (general or spinal anesthesia) for the procedure. A study done in Pakistan showed that about 86% of clients who undergone C/S were aware of available anesthesia technique. In this study, however, only 50 % preferred regional anesthesia. In contrast, general anesthesia is progressively decreasing to less than 10 % in developed world (2,10,11,22).

In another study done in Turkey on 274 obstetric clients, 64.2% and 35.8% opted for general anesthesia and spinal anesthesia, respectively. The level of education, income and physician recommendation were associated with the increased choice of spinal anesthesia. In this study, there is no association between previous anesthesia exposures with current choice of anesthesia type. Those whose job was mentioned as housewife were less likely to choose regional anesthesia (12).

Study done in Eritrea on the satisfaction of mothers during C/S in 2017 to 2018 showed that 87.5% of women prefer spinal anesthesia for future. But, about 12 % of the study participants were decided not to opt spinal anesthesia for future C/S due to the fear of intra-op awareness, pain and headache (23).

A study done in Jimma University to evaluate perception, knowledge and attitude of pregnant mothers on anesthesia found that about 31.3% were aware of the existence of different types of anesthesia mode. The main source of information was through their life experience. Not all patients who had previous anesthesia exposure opted for same mode of anesthesia. Among the pregnant women who underwent cesarean section about 77% preferred general anesthesia. Of the 88% of clients who received general anesthesia on their previous cesarean delivery about 12% selected regional anesthesia. Fear of seeing things and previous anesthesia exposure were the

primary reason to choose general anesthesia. Fear, lack of awareness, and misconceptions are associated with refusal of regional anesthesia. The choice of anesthesia mode is influenced by mothers' knowledge on option of anesthesia type, occupation and parity.

About 72% of pregnant women had fear of sudden death, near to 16% had fear of pain and 12% had fear of delayed awakening related to anesthesia (14).

In the study done in University of Gondar, 12.6% were dissatisfied with general anesthesia. Intra-operative awareness and intra-operative & immediate post op pain were associated with the dissatisfaction. This could be the reason for the high (78.6%) preference rate of spinal anesthesia for future surgeries (5,7).

A study done in Gandhi Memorial Hospital from March – July 2014, with a 100 % response rate showed that there is no significant difference in the level of satisfaction with anesthetic technique for cesarean section(24).

CHAPTER 3. STUDY OBJECTIVES

3.1 General Objective

To determine the preference rate of spinal vs general anesthesia for elective C/S at Tikur Anbessa specialized Hospital

3.2 Specific Objectives

To establish the rate of spinal anesthesia and general anesthesia

To verify factors associated with the preference of anesthesia type among pregnant women undergoing elective cesarean section

CHAPTER 4. METHODS

4.1 Study Area

Study was carried out at Tikur Anbessa specialized hospital, which is found in the center of Ethiopian capital city, Addis Ababa. TASH is the largest national referral and teaching hospital providing comprehensive health services. Gynecology and obstetrics ward used about 32 beds for obstetric patients during the study period. As per the 2020 records, it carries out a total of about 722 elective caesarean section deliveries per year.

4.2 Study Design and Period

A prospective cross-sectional study design was conducted through administrating structured questionnaire accompanied by a consent/ascent to patients who were scheduled to undergo elective cesarean section at TASH. The study was done from April 1 to September 30/2021.

4.3 Study Participants

Participants were recruited from obstetric women who were scheduled to undergo elective C/S at TASH over the study period. They were identified from elective theatre lists submitted to the theatre for C/S from the obstetric wards at TASH.

All clients scheduled for elective c/s on odd number were selected as participants for the study. The study was explained to the participant and an informed consent obtained prior to participating in the study. The questionnaires were administered by trained data collectors after pre-anesthetic evaluation is done and consent for anesthesia is taken during the evaluation by assigned residents. All the questionnaires were collected before cesarean section.

4.4 Inclusion and Exclusion Criteria

4.4.1 Inclusion criteria

Obstetric clients who were scheduled to undergo elective C/S at TASH during the study period

4.4.2 Exclusion criteria

• Obstetric clients who were scheduled to undergo elective surgeries at TASH and are considered unable to consent or too ill to consent

• Obstetric clients who have contraindication for spinal anesthesia

4.5 Sample size calculation

The sample size was calculated using the formula: $\mathbf{n=z^2pq\ /d^2}$ where

n is sample size (if the Target population is more than 10,000)

z is the standard normal deviation at the required confidence level; in this case I take it as 1.96

p is the proportion in the target population estimated to have characteristics being measured

The proportion of the target population, from the study done in Gandhi Memorial Hospital in 2013 showed the rate of spinal anesthesia 58% and taking 5% as the margin of error with 95 % confidence interval. Ten percent is added for non-response rate. The sample size using single proportion population formula is

$$n = \frac{z^2_{1-\alpha/2} \times p \times (1-p)}{d^2} = 374$$

n= sample size P= incidence rate Z = value corresponding to a 95% level of significance = 1.96, D= margin of error

Since the study population in this study is less than 10,000 the sample size was calculated as follows n (target population) N= 384 no=calculated sample size(above) $n = \frac{no}{1+(no-1)/N}$ = **190**

N is the number of cesarean section delivery done last year (same with current study period).

adding 10% non-response rate n=**209**

using systematic random sampling k value was calculated (k=1), which is equivalent to every other client and the first client was taken by simple random sampling.

4.6 Study Variables

4.6.1 Dependent Variable

Anesthesia type

4.6.2 Independent Variable

Age

Educational level

Employment status

Previous anesthesia exposure

Parity

4.7 Data collection

The questionnaire was translated to Amharic and pre-test was done before the data collection. Pre-tested structured questionnaires were employed to collect data on the clinical demographics, information regarding anesthesia mode, preferences of anesthesia type and reason for the anesthesia type preference. Trained data collectors collected the data from the clients. Data was collected after clients were scheduled for next day C/S and pre-anesthetic evaluation was done.

4.8 Data Analysis/Statistical Methods

Data was entered into Epi-data version 4.6 and exported to SPSS version 25 for analysis. Descriptive analysis was done for Socio-demographic and clinical characteristics of the participants.

A Chi-square test was used to test the distribution of categorical variables between the groups. Bi-variate logistic regression was done for each predictor variable and outcome variable. Multivariate logistic regression was done and statistical significance p-value less than 0.05 was taken as a determinant factor.

4.9 Quality Reassurance

Pilot test was done at st Paul Hospital Millennium Medical College for quality assurance and revision of the questionnaire was done. The collected data was checked for completeness by the investigator on daily bases.

4.10 Ethical consideration

There was no major risk to study participants. Potential benefits and risks were explained to the study participants. Verbal informed consent was obtained from each participant. Ethical clearance was obtained from the department of Anesthesiology, Critical Care and Pain Medicine. All data collectors received the same training on maintaining confidentiality. There was no any unexpected incident or serious adverse issue that occurred during the data collection.

4.11 Operational Definition

Anesthesia type/mode: spinal anesthesia or general anesthesia

Multipara: women who had gave birth at least once

Previous anesthesia exposure: women who underwent cesarean section under spinal or general anesthesia

Previous anesthesia information: women who have the information about the existence of spinal and general anesthesia for cesarean section

Source of information: highest contributor of the information; physician and others (nurses, midwife, anesthetist, family/friends, medias)

CHAPTER 5. RESULT

A total of 200 pregnant women scheduled to undergo elective C/S were included in this study and were asked to fill out a questionnaire investigating the anaesthesia type preference and the reasons that affected their preference. The response rate of the study participants was 95.6%. Though the questionnaires distributed to all of the study participants, due to their own preferences few of them were not able to complete the questionnaire.

5.1 Socio-demographic Characteristics of Study Participants

Among the study participants, 53 (26.5%) of them were within the age range of 30-34 years, 51(25.5%) and 43(21.5%) of them were within the age range of 25-29 and 35-39 years respectively. This data showed that, majority of the study participants were within the age interval of 25 to 35 years with mean age of 30.

The educational level of the study participants was also characterized as; 51.5% of them completed college and above while 23.5%, 14.0% completed secondary and primary school respectively and 11 % were illiterate (Table 1).

Participants were classified into un-employed and employed

Figure 1, shows that 80(40%) of the study participants were self-employed while 66(33%) and 54(27%) of them were unemployed and employed respectively.

Regarding parity, 74.5% of respondents were multiparous and the rest of them were nulliparous.

Table 1 Socio-demographic characteristics of the study participants at TASH, Addis Ababa, Ethiopia 2021 (n=200)

Variables		Frequency	Percent
Age	15 – 30	94	47
	31 – 45	106	53
	Total	200	100
Parity	Nulliparous	51	25.5
	Multiparous	149	74.5
Educational level	Illiterate	22	11.0
	primary education	28	14.0
	secondary education	47	23.5
	College and above	103	51.5
Employment	Employed	134	67
	Unemployed	66	33

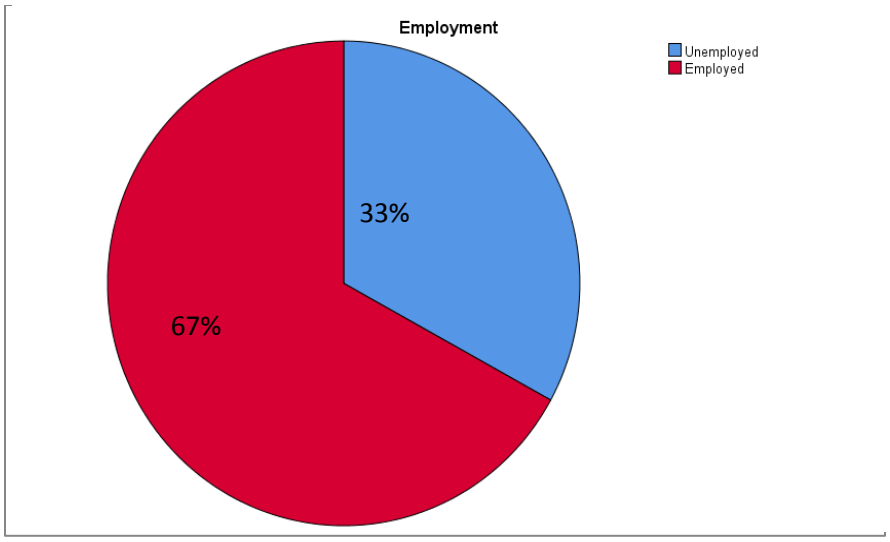

Figure 1 Employment status of the study participants at TASH, Addis Ababa, Ethiopia 2021 (n=200)

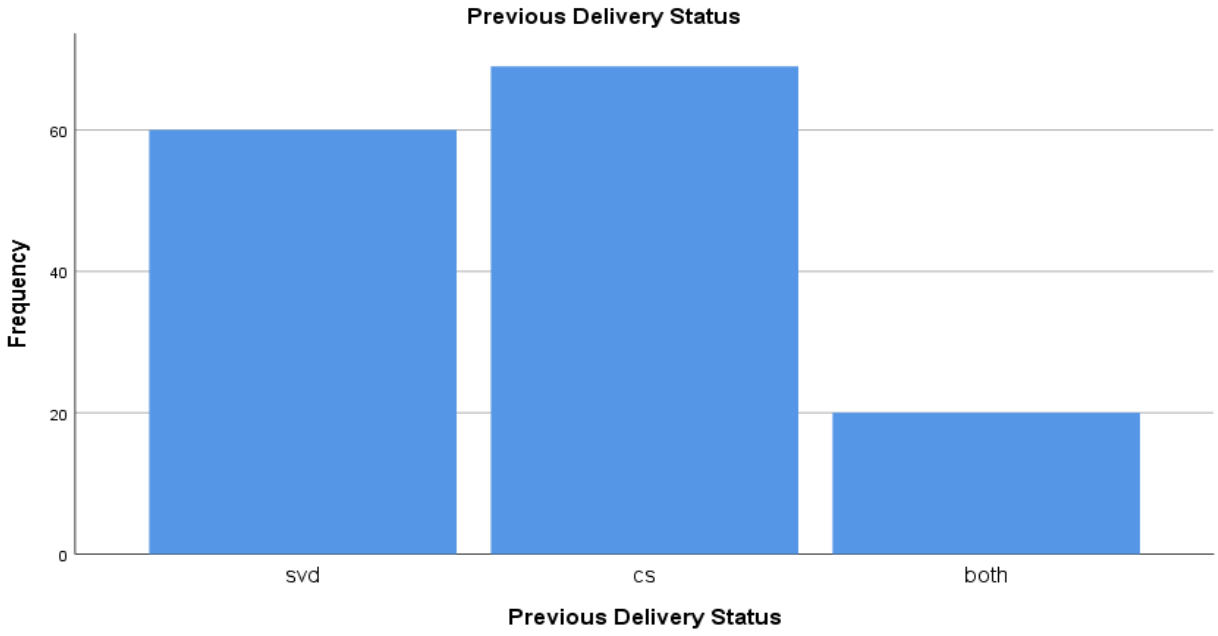

Figure 2 Previous mode of delivery of the study participants at TASH Addis Ababa, Ethiopia 2021 (n=200)

5.2 Chronic Medical Illness Among the Study Participants

Under this title we want to identify pregnant women with chronic medical illness which may complicate and make hindrance to the chance of choosing anesthesia mode. If the client had any contraindication for spinal anesthesia, she would have no chance to choose it for the scheduled C/S. One hundred fifty-three (76.5%) of the women had no any chronic medical illness. Forty-seven women (23.5%) had chronic medical illness. Among these 25(53.2. %), 15(31.9%) and 6(12.8%) of them were having cardiovascular disease (hypertension with cardiac hypertrophy, asymptomatic CRVHD), endocrine diseases (Type2DM or GDM) and respiratory diseases respectively.

Table 2 Known chronic illness of the study participants at TASH, Addis Ababa, Ethiopia 2021(n=200)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	respiratory disease	6	3.0	12.8	12.8
	cardiovascular disease	25	12.5	53.2	66.0
	kidney disease	1	.5	2.1	68.1
	endocrine disease	15	7.5	31.9	100.0
	Total	47	23.5	100.0	
	No medical illness	153	76.5		
Total		200	100.0		

5.3 Previous Anesthesia Exposure

Among the study participants, 51(25.5%) of the women were nulliparous while 149 (74.5%) were primiparous or multiparous. Of the 149 women 60 (40.3%) delivered through vagina, 69(46.3%) delivered via caesarean section and 20(13.4%) of them delivered both vaginally and via caesarean section.

Over all pregnant women who underwent C/S previously accounted 44.5%.

Most of the women (55.5%) came first time for cesareans section. So, this data includes women who delivered via vagina and presented first time for cesarean delivery. Among the women who delivered via caesarean section previously, 51(57.3%) of them were done under spinal anesthesia.

Among 89 women who underwent C/S, 18(20.2%) of them had previous general anesthesia exposure for cesarean section. Twenty (22.5%) of them underwent both general anesthesia and regional anesthesia. Of the 44.5% women who previously underwent c/s, 25.5% were done under SA, 9 % under GA and 10% of them done under both SA and GA.

69 (77.5%) of the women who underwent previous cesarean section were satisfied while 20 (22.5%) of them were not satisfied with the mode of anesthesia they took previously. 47 (92%) of those who took SA were satisfied while only 9 (50%) of those who took GA were satisfied. Those who took both SA and GA were 13 (65%) satisfied with the choice of anesthesia

Table 3 Previous anaesthesia exposure of study participants at TASH, Addis Ababa, Ethiopia 2021(n=200)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	51	25.5	57.3	57.3
	GA	18	9.0	20.2	77.5
	Both	20	10.0	22.5	100.0
	Total	89	44.5	100.0	
No exposure		111	55.5		
Total		200	100.0		

Table 4 Satisfaction with previous anaesthesia exposure of study participants at TASH, Addis Ababa, Ethiopia 2021(n= 200)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	69	34.5	77.5	77.5
	no	20	10.0	22.5	100.0
	Total	89	44.5	100.0	
No anaesthesia exposure		111	55.5		
Total		200	100.0		

Source of Information about anesthesia type for cesarean section

Significant number of women who are scheduled to undergo cesarean section had no previous information about anesthesia mode available for c/s. Among the study participants, 108 (54%) women have no information and 92(46%) have information about the type of anesthesia available for elective cesarean section. The source of information for the study participants were physician (55.6%), personal experience (13.9%), family/friends (13.0%) and social media (17.6%).

Table 5 Source of information about anesthesia for caesarean delivery of the study participants at TASH, Addis Ababa, Ethiopia 2021(n= 200)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Physician	60	30.0	55.6	55.6
	family/friend	14	7.0	13.0	68.5
	personal experience	15	7.5	13.9	82.4
	social media	19	9.5	17.6	100.0
	Total	108	54.0	100.0	
No information		92	46.0		
Total		200	100.0		

5.4 Partners Preference of Anesthesia Type

We asked the preference of the study participants' partners on the selection of the mode of anesthesia and found that 58.5% of the participants' partners prefer the same mode of anesthesia the women preferred. Forty-nine 49(24.5%) of the partners were not available while the data was being collected and 34(17%) of them were neutral to the question. This finding showed that majority of the study participants' partners prefer the same mode of anesthesia as their wife. Among the partners who commented on the mode of anesthesia for their wives (106)90.6% prefer spinal anesthesia and (11)9.4% prefer general anesthesia.

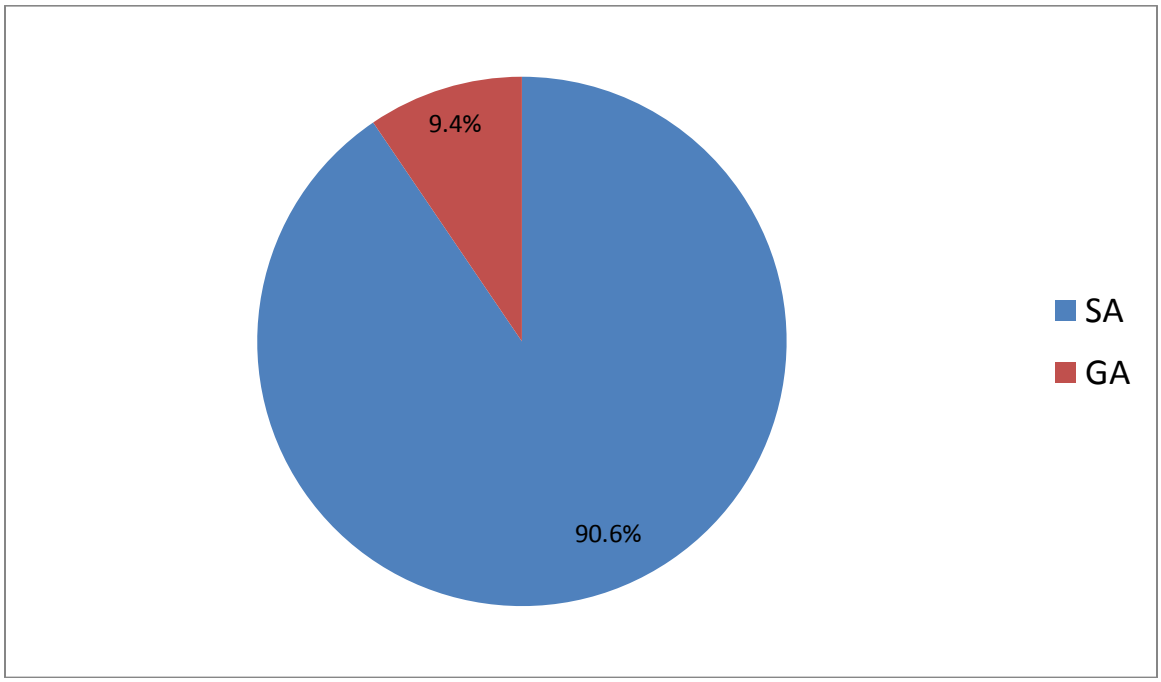

Figure 3 Partners preference of the mode of anesthesia to be taken at TASH, Addis Ababa, Ethiopia 2021(n=200)

5.5 Complications the Women Want to Avoid

Depending on the anesthesia type and how providers administer it, the women may experience some level of pain or discomfort. Side effects like, back pain, chills caused by low body temperature (hypothermia), difficulty urinating, headache, itching, nausea and vomiting, pain, tenderness, redness or bruising at the injection site and sore throat (pharyngitis) are some of the facts that followed post anesthesia. We forwarded questions for the respondents at the study area and found that 113 (56.5%) of them were not afraid of the signs and symptoms mentioned above while 87(43.5%) afraid of the side effects after anesthesia. Some of them had the fear of headache (8.5%), urinary retention (8.0%) and nausea/vomiting (6.0%). It is shown that due to the fear of back pain (7.5%), muscle paralysis (6.0%), hearing noises and seeing something during surgical procedure (6.5%) women favor GA than SA.

Table 6 Complications wanted to avoid by the study participants at TASH, Addis Ababa, Ethiopia 2021(n=200)

		Frequency	Percent
Valid	nausea/vomiting	12	6.0
	urinary retention	16	8.0
	back pain	15	7.5
	headache	17	8.5
	anxiety	2	1.0
	muscle paralysis	12	6.0
	surgical noise	2	1.0
	seeing something during surgery	11	5.5
	not afraid	113	56.5
	Total	200	100.0

5.6 Preference rate of Spinal Anesthesia and General Anesthesia

Among the respondents of study participants, about 90% prefer spinal anesthesia and 10% prefer general anesthesia. One of the study participant had no information about anesthesia and had no specific preference.

Table 7 Anesthesia mode preference of the study participants at TASH, Addis Ababa, Ethiopia 2021(n=200)

		Frequency	Percent
Valid	SA	179	89.5
	GA	20	10.0
	Have no idea	1	.5
	Total	200	100.0

The women who were involved in the research forwarded their reasons why they preferred one mode of the anesthesia over the other; some of the respondents answered that they had good previous experience with regional/general anesthesia (13.5%), bad experience with previous general anesthesia/spinal anesthesia (3%) and the others mentioned anesthesia provider recommended for them (10%).

Figure 4 describe the reasons for their preference. Those who prefer SA want to remain awake during the procedure (47.5%), and 11% wanted the analgesic effect after the procedure. The overall preference rate of spinal anesthesia service for elective caesarean section is 89.5 %.

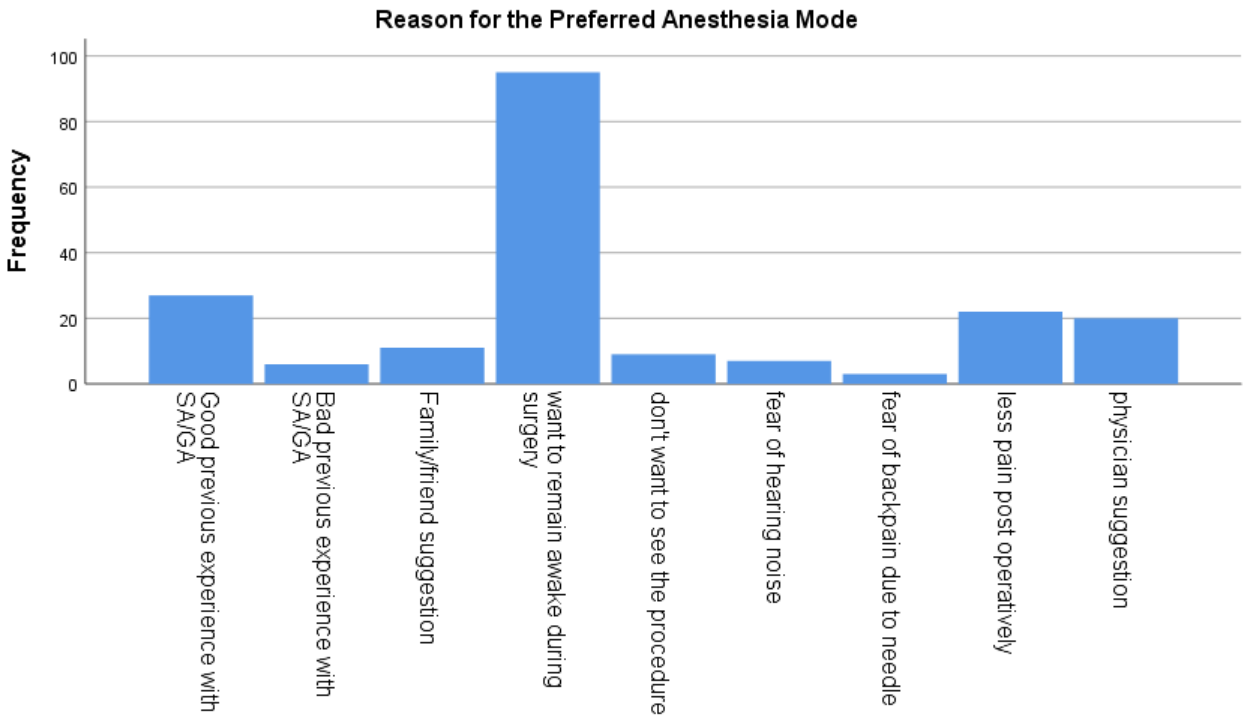

Figure 4 Reasons for the anesthesia mode preference by the study participants at TASH, Addis Ababa, Ethiopia,2021 (n=200)

5.7 Factors Associated with Anesthesia Type Preference

Statistical analysis was done by using SPSS software edition 25. Chi-square was used to test the distribution of the variables and check the association with the dependent variable. Pearson/spearman correlation was also used. Bivariate and multivariate logistic regression were used to test the association between independent and dependent variables. Negelkerke and cox & snell model test was used during the analysis. Variables having p-value ≤ 0.25 in the bivariate analyses were used for multivariable logistic regression to control the confounding effect. Among the women who underwent cesarean section under spinal, general anesthesia or both, 73(82.0%) of them prefer spinal anesthesia while the rest 16(18.0%) of them prefer general anesthesia. Thirty three percent of those who previously took GA prefer same type of anesthesia for current surgery. Among those who previously took both SA and GA, 7(35%) of them prefer GA.

As compared to women who previously took GA or SA, women who have no previous anesthesia exposure are high likely to prefer spinal anesthesia (p = 0.028 AOR 4.94 (1.19, 20.54).

Illiterate women are less likely to prefer spinal anesthesia as compared to literate women. The odd of preferring spinal anesthesia for literate women is 19.9(4.6, 87.3 p value < 0.001).

There is no association found with age, parity, previous mode of delivery, previous information about anesthesia, employment status, partners preference and feared anesthesia related complications.

Table 8 Cross-tab analysis of factors associated with the preference of anesthesia type for elective C/S at TASH, Addis Ababa, Ethiopia (n=200)

		GA (N/%)	SA (N/%)	Total (%)	P*
Age	15-30	3	40	43(100)	0.575
	31-45	17	139	156(100)	
Chronic Medical Illness	Respiratory disease	1(16.7)	5(83.3)	6(100)	0.419
	Cardiovascular disease	1(4)	24(96)	25(100)	
	Kidney disease	0	1(100)	1	
	Endocrine disease	1(6.7)	14(93.3)	15(100)	
Complications wanted to Avoid	Fear of GA related complications	7(15)	39(85)	46(100)	**< 0.001**
	Fear of SA related complications	10(25)	30(75)	40(100)	
Partners preference of mode of anesthesia	SA	7(6.7)	99(93.3)	106(100)	0.291
	GA	2(18.2)	9(81.8)	11(100)	
	Neutral	2(5.9)	32(94.1)	34(100)	

*Contingency table, spearman/pearson correlation used

- There is association found between complications wanted to avoid and anesthesia mode preference. There is a statically significant difference with regard to the preference of anesthesia type within the group of women who want to avoid anesthesia related complications.

Table 9 Cross-tab analysis of factors associated with the preference of anesthesia type for elective C/S at TASH, Addis Ababa, Ethiopia (n=200)

		SA	GA	Total	P value *
Educational level	Illiterate	9	13	22	**< 0.001**
	Literate	170	7	177	
Employment status	Unemployed	54	12	66	**< 0.001**
	Employed	125	8	133	
Parity	Nullipara	48	3	51	0.295
	Multipara	131	17	148	
Previous delivery	SVD or C/S	114	14	128	0.704
	Both SVD and C/S	17	3	20	
Previous anesthesia exposure	SA or GA	60	9	69	**< 0.001**
	Both	13	7	20	
	No exposure	106	4	110	
Satisfaction with previous anesthesia exposure	Yes	55	14	69	0.508
	No	18	2	20	
Previous information about anesthesia	yes	93	15	108	0.060
	No	86	5	91	
Source of information about anesthesia	Physician	51	9	60	1
	Others	41	7	48	
Partners preference	Yes	108	9	117	0.291
	No	72	11	83	
Preference reasons	Good previous SA and bad GA experience	31	2	33	0.204
	Family/friends recommendation	30	9	39	
	Want to remain awake during procedure	118	9	127	

*Chi-square, contingency table & spearman/pearson correlation are used

There are statically significant differences within the groups of employment status, previous anesthesia exposure and educational level with regard to anaesthesia mode preference.

Table 10 Bivariate logistic regression analysis of factors associated with the preference of anesthesia type for elective C/S at TASH, Addis Ababa, Ethiopia (n=200)

		SA	GA	Total	P value	COR(95%CI)
Age	15-30	40	3	43		
	31-45	139	17	156	0.453	1.631(0.455, 5.846)
Educational level	Illiterate	9	13	22		
	Literate	170	7	177	**<0.001**	35.079(11.248, 109
Employment Status	Unemployed	54	12	66	0.035	
	Employed	125	8	133	**<0.001**	7.529(2.601,21.795)
Parity	Nullipara	48	3	51	0.260	0.482(0.135, 1.717)
	Multipara	131	17	148		
Previous Delivery Status	SVD or CS	114	14	128		
	Both SVD and CS	17	3	20	0.598	0.696(0.181, 2.676)
Complications wanted to Avoid	Fear of GA related complications	39	7	46		
	Fear of SA related complications	30	10	40	0.298	0.924(0.795, 1.073)
Previous Anaesthesia Exposure	SA or GA	60	9	69		
	Both	13	7	20	**0.027**	0.252(0.074, 0.852)
	No exposure	106	4	110	**<0.001**	0.070(0.018, 0.272)
Satisfaction with Previous Anaesthesia Exposure	Yes	55	14	69	0.302	0.437(0.090, 2.107)
	No	18	2	20		
Previous Information about Anaesthesia for CS	Yes	93	15	108	**0.058**	2.774(.967, 7.952)
	No	86	5	91		
Source of Information	Physician	51	9	60		
	Others	41	7	48	0.952	(1.034(0.355,3.013)
Partners preference	Yes	108	9	117	**0.209**	1.816(.716, 4.605)
	No	72	11	83		
Preference reasons	Good previous SA and bad GA experience	31	2	33	0.017	
	Family/friends recommendation	30	9	39	0.262	0.215(0.043, 1.078)
	Want to remain awake during procedure	118	9	127	0.836	0.846(0.174, 4.117)

Table 11 Bivariate and multivariate logistic regression analysis of factors associated with the preference of anesthesia type for elective C/S at TASH, Addis Ababa, Ethiopia (n=200)

		SA	GA	Total	P value	COR(95%CI)	P value*	AOR(95%CI)
Educational Level	Illiterate	9	13	22				
	Literate	170	7	177	<0.001	35.08(11.248, 109)	< **0.001**	19.99(4.58,87.2)
Employment Status	Unemployed	54	12	66	.035			
	Employed	125	8	133	<0.001	7.529(2.601, 21.795)	.280	2.20(.525, 9.22)
Previous Anaesthesia Exposure	SA or GA	60	9	69				
	Both SA and GA	13	7	20	0.027	0.252(0.074, 0.852)	.461	.549(.11, 2.70)
	No exposure	106	4	110	<0.001	0.070(0.018, 0.272)	**.028**	4.93(1.19,20.54)
Previous Information about Anaesthesia for CS	Yes	93	15	108	0.058	2.774(.967, 7.952)	.191	.149(.01, 2.58)
	No	86	5	91				
Partners preference	Yes	108	9	117	0.209	1.816(.716, 4.605)	.220	2.05(.683,6.162)
	No	72	11	83				

NB: Regression with anesthesia type
Reference category; * significant at 0.05, OR: Crude odds ratio; AOR: adjusted odds ratio; CI: confidence interval

CHAPTER 6. DISCUSSION

We found that 74.5% of the study participants had previous delivery while 51(25.5%) of them presented first time for delivery. More than fifty percent of the study participants came first time for C/S. Using spinal anesthesia technique avoids general anesthesia related complications. It also increases the quality of life by controlling post-operative pain and provide fast return to daily activities (4). This study showed that among pregnant women who were scheduled for elective C/S in Tikur Anbessa Specialized Hospital 179 (89.5%) prefer spinal anesthesia while 20 (10%) prefer general anesthesia. So, the overall spinal anesthesia preference rate for elective caesarean section is about 90 %. The rate of spinal anesthesia has comparable finding with the study done in developed countries (10).

As age increases spinal anesthesia preference rate increase as compared to general anesthesia. Women within the age range of 15-19 prefer general anesthesia more than those with other age groups (2/100%). This is similar finding with the study done in Turkey (18/72%) (15). However, multivariate logistic regression showed that there is no association between age groups and outcome variable.

Employed women and women with high educational level may have easy access to information about anesthesia and choose spinal anesthesia. General anesthesia method is preferred at high rate of 59% among the illiterate group, 7.1% in the primary school completed group, 4.3% in the high school completed group and 2.9% in the college graduated and above group. As women gets educated they will have the chance to prefer the best available option. Multivariate logistic regression showed that literate women are high likely to prefer spinal anesthesia as compared to illiterate women (AOR 19.9(4.58, 87.27 $p < 0.001$). General anaesthesia was observed to be preferred at a high rate of 66.7% in the uneducated group in the study finding in Turkey (12, 15). Most of the study respondents are in the employed group. Of the employed women (94%) prefer spinal anesthesia than general anesthesia. Of un-employed women 82% prefer spinal anesthesia. There is no association found between employment status and anesthesia mode preference on multivariate analysis.

Among multiparous and nulliparous, 88% and 94% prefer spinal anesthesia respectively. Overall, 65% of multiparous prefer spinal anesthesia. However, there is no association found between parity and anesthesia mode preference.

Of the clients who had spinal anaesthesia experience in the past 94 % prefer spinal anaesthesia mode. This finding is higher than the study finding in Turkey which was 36.9%. This could be due to the need to remain awake during the surgical procedure and good previous anesthesia exposure. Of the clients who had general anaesthesia experience in the past, 67 % prefer spinal anaesthesia whereas 33% prefer general anesthesia. It is higher than the finding from the study done in Jimma, which was only about 12% for spinal anesthesia. But, it is comparable with the study finding done in Turkey which was 68% and 32 % respectively (14, 15).

Clients with previous spinal anesthesia experience prefer spinal anesthesia more than those who previously took general anesthesia only (94% vs 67%). Women who had both spinal and general anesthesia exposure prefer general anesthesia more than those who had only general anesthesia exposure (35 % vs 33% respectively). There is association between previous anesthesia exposure and current anesthesia mode preference. Clients with no previous anesthesia exposure are high likely to prefer SA as compared to those who previously took anesthesia (AOR 4.94(1.19, 20.54 p = 0.028). This can be attributed to mothers' concerns related to previous anesthesia experience and women with no previous anesthesia experience have no bad experience with regard to anesthesia type. This finding is comparable with the study done in university of Baskent, Ankra which showed preference rate of 55.6% (15). It is also similar with the study done in Pakistan, which was done on small sample size (56) (11).

In our study 47 of 200 pregnant women (23.5%) had been diagnosed with chronic medical illness. Pregnant women who were diagnosed with chronic medical illness prefer spinal anaesthesia, this is based on the desire to remain awake during the procedure.

Although there is no association found with the outcome variable, the need to remain awake during surgery (47.5%) and post-operative analgesia (11%) influences anesthesia mode preference.

Bad experience with previous general anesthesia (3%), good previous spinal anesthesia experience (13.5%) and health care providers recommendation (10%) for spinal anesthesia make them prefer spinal anesthesia. General anesthesia was preferred by illiterate women at higher rate

(45%), which is similar with the study finding in Turkey (15). Fifty four percent of the women who were scheduled for elective C/S had previous information about anesthesia for C/S while 46% had no information about anesthesia. It is higher than the result of study done in Jima (which was 31.3 %) and comparable with study done with similar topic in Turkey which was 41.6% (14,15).

The source of information for study participants were physician (55.6%), social media (17.6%) personal experience (13.9%) and family/friends (13%).

Fifty six percent of women get information about anesthesia from physicians. This is higher than the finding from the study done in Turkey (46%) (15). There is no association found between the source of information and anesthesia mode preference.

CHAPTER 7. RESEARCH STRENGTH AND LIMITATIONS

A research on factors associated with the preference of SA and GA in pregnant women undergoing elective CS was not done in our set up prior to this research.

The reasons for bad experiences with previous anesthesia exposure were not sorted out in this study, which also needs further study. Health care providers influence on the mother's preference of anesthesia type can't be ruled out

I believe that these findings do not represent all Ethiopian women as a whole, thus it is recommended that further research is done by researchers at a country level.

CHAPTER 8. CONCLUSION AND RECOMMENDATION

8.1 CONCLUSION

The study showed that among women who were included in the study, majority of them prefer spinal anesthesia (90%).

Educational level and lack of previous anesthesia exposure are significantly associated with the preference of anesthesia type (spinal anesthesia).

Women who were satisfied with their previous SA and those who were dissatisfied with their previous GA exposure prefer spinal anesthesia. The younger age group prefer general anesthesia than spinal anesthesia.

There is no statically significant association with previous anesthesia information and current anesthesia mode preference. Many of the study respondents have no prior information about anesthesia for cesarean section.

8.2 RECOMMENDATION

Based on our findings the following recommendations are forwarded to the concerned body;

For Anesthesia Providers and Gyne-Obs Physicians

- Keep improving quality of spinal anesthesia service
- Improving the quality of spinal anesthesia service encourages women to prefer spinal anesthesia for future.
- It will be better if pregnant mother gets adequate information about anesthesia during ANC follow up.

For Hospital Administrators

- Encourage social medias so that pregnant women would get adequate information about modes of anesthesia for C/S

For Future Researchers

- Researchers should conduct same study with larger sample size to know the findings which will represent all Ethiopian women and conduct new studies based on gap identified.

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Annex 1

Subject information sheet

Addis Ababa University

School of medicine

Subject information sheet

Hello, my name is ----------, I am here on behalf of Dr. Lemi Bayisa, a student in Addis Ababa University School of medicine. He is conducting a research on "factors associated with the preference of spinal and general anesthesia for elective cesarean section at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2021". He has received permission from Addis Ababa University School of medicine and Tikur Anbessa Specialized Hospital officials to conduct the study.

You are selected to participate in this study because you are currently being treated for the case of interest in this facility. Your participation in this study will only be based on your willingness to participate. You have the right to choose not to take part in this study. If you are not willing, you have the right to stop at any time or withdraw without giving any reason which you will not be subjected to any ill-treatment. There will be no direct benefit by participating in this study but in future, information gathered by this study will helps policy makers, programmers and researchers to give appropriate attention on issues of interest and design specific treatment options.

The information that you provide will be kept confidential by using only code numbers and locking the data. Only the members of the study team will have the access to the non-coded data and the data will not be used for purposes other than the study. Your willingness and active participation is very important for the success of this study.

If you need any further information or explanation regarding to the study, you can have this address to contact.

Name: Dr. Lemi Bayisa Tel- +251-921252730 Email- lemiba2022@gmail.com

Annex 2: Informed consent and/or Ascent form

Based on the understanding of the above information, are you willing to participate in this study?

A) Yes
B) No

If yes, Signature ---------- Date----------

Data collector

Name ---------- Signature ----------

Questionnaire ID Number ----------

Date of data collected ----------

Result of data collected

A) Completed
B) Not completed
C) Partially completed
D) Refused

Checked by supervisor: Name ---------- Signature ----------

For further explanation, use the principal investigator's address:

Name: Dr. Lemi Bayisa Tel- +251-921252730 Email- lemiba2022@gmail.com

Annex 3: Questionnaire (English Version)

I. Demography

1. Age ----------

2. Level of Education

A. Illiterate B. Primary Education C. Secondary Education D. College Education

3. Employment Status A. Employed B. Unemployed C. Self Employed

4. Parity A. Nullipara B. Multipara (at least one previous delivery)

II. Previous Delivery

5. Mode of Previous Delivery

A. Vaginal Delivery B. Cesarean Section C. Vaginal Delivery & Cesarean Section

6. Previous Anesthesia Mode (If Received)

A. Spinal Anesthesia B. General Anesthesia C. Spinal Anesthesia & General Anesthesia

D. Presented first time for surgery

7. Are you satisfied with your previous mode of Anesthesia exposure? A. Yes B. No

III. Previous Information about anesthesia & Mode of Anesthesia preference

8. Been given information about anesthesia in advance (prior to admission to hospital)

A. Been informed B. Not Been informed

9. What was your main source of information about the anesthesia for cesarean section delivery? (choose one)

A. Physician

B. Midwife/Nurse

C. family member/friend

D. personal experience

E. Book /Video/TV program

F. Internet

G. Other please list…….

10. Which mode of anesthesia have you preferred?

A. Spinal

B. General Anesthesia

C. Have no idea what type of anesthesia to choose

11. Reason for your preference

A. Good previous experience with previous RA/GA

B. Bad experience with previous GA/SA

C. Due to family & relative's advice

D. Want to remain awake during surgery

E. Do not want to see the procedure

F. Fear of hearing noises

G. Fear of back pain due to needle

H. Less pain post operation

I. Surgeon / Anesthesia provider recommendation

12. Did your partner choose the mode of anesthesia you're going to receive?

A. Yes B. No C. Neutral D. He isn't around

13. If yes to question No – 12 which mode of anesthesia he opted?

A. Spinal B. GA C. Neutral

14. Previously known diseases (if any)

A. Respiratory Disease B. Cardiovascular Disease C. Kidney Disease D. Endocrine Disease

E. Other, specify ----------

15. Which outcome you want to avoid during the anesthesia exposure?

A. Cognitive dysfunction

B. Nausea/vomiting

C. Urinary retention

D. Back pain

E. Headache

F. Anxiety

G. Low back pain

H. Fear of paralysis

I. Hearing the surgical noises

J. Seeing something during the surgery

Other, please specify ----------

አዲስ አበባ ዩኒቨርሲቲ የህክምና ትምህርት ቤት

የጥናት ተሳታፊ መረጃ የሚቀርብበት ቅጽ

ሰላም, ስሜ _____ይባላል፣ ይህንን መረጃ የምሰበስበው በአዲስ አበባ ዩኒቨርሲቲ በህክምና ትምህርት ቤት ተማሪ የሆነውን ዶ/ር ለሚ ባይሳ ወክዬ ነው፡፡ እርሱ በአሁኑ ጊዜ በ2013 ዓ.ም በጥቁር አንበሳ ስፔሻላይዝድ ሆስፒታል፣ አዲስ አበባ ኢትዮጵያ በቀጠሮ በቀዶ ህክምና ለሚወልዱት የከፊል ሰመመን (Spinal Anesthesia) እና ሙሉ ሰመመን ለመምረጥ ጋር ተያይዘው የሚኖሩ ክስተቶች እና ተያያዥ መንስኤዎች ላይ ጥናትና ምርምር በማድረግ ላይ ይገኛል፡፡ ከአዲስ አበባ ዩኒቨርሲቲ በህክምና ትምህርት ቤት ጥናቱን ለማከናወን ፈቃድ አግኝቷል፡፡

እርስዎ በዚህ ጥናት ውስጥ እንዲሳተፉ የተመረጡት በአሁኑ ጊዜ ለጥናቱ ከተመረጠው ርዕሰ ጉዳይ ላይ ህክምና እየተደረገልዎት በመሆኑ ነው፡፡ በዚህ ጥናት ውስጥ የሚኖርዎት ተሳትፎ በፈቃደኝነትዎ ላይ ብቻ የተመሰረተ ነው፡፡ በዚህ ጥናት ውስጥ ያለመሳተፍ መብትዎ የተጠበቀ ነው፡፡ ምንም አይነት ምክንያት መስጠት ሳያስፈልግዎት በማንኛውም ጊዜ ተሳትፎዎን ማቋረጥ ወይም ማቆም ይችላሉ፡፡ በማቆምዎ ምክንያትም የሚደርስብዎት ምንም አይነት ጉዳት አይኖርም፡፡ በዚህ ጥናትና ምርምር ውስጥ ተሳትፎ ከማድረግ የሚገኝ ቀጥተኛ ጥቅም ባይኖርም በቀጣይ በዚህ ጥናት የሚሰበሰበው መረጃ ግን ፖሊሲ አውጭዎች፣ የፕሮግራም ሰራተኞች እና የዘርፉ ተመራማሪዎች የሰመመን ህክምና አማራጭ ላይ ተገቢውን ምክረሃሳብ እንዲሰጡ የሚያግዛቸው ይሆናል፡፡

እርስዎ የሚሰጡት መረጃ መለያ ቁጥር በመስጠት ብቻ እና መረጃውን ሌላ ሰው እንዳያገኘው በሚስጥራዊ ቁልፍ በማስቀመጥ ሚስጥራዊነቱ ተጠብቆ የሚቀመጥ ይሆናል፡፡ መለያ ያልተሰጣቸውን መረጃዎች ማግኘት የሚችሉት የጥናትና ምርምሩ አባል የሆኑት ብቻ ሲሆን መረጃውም ከጥናቱ በስተቀር ለሌላ አላማ አይውልም፡፡ የእርስዎ ፈቃደኝነት እና ንቁ ተሳትፎ ለዚህ ጥናት ስኬታማነት በጣም አስፈላጊ ነው፡፡

ጥናቱን በተመለከተ ማንኛውንም ተጨማሪ መረጃ ወይም ማብራሪያ ከፈለጉ ይህንን አድራሻ ተጠቅመው ማናገር ይችላሉ፡፡

ስም፡ ዶ/ር ለሚ ባይሳ ስልክ፡ +251-921252730 ኢ-ሜይል፡ lemiba2022@gmail.comየስምምነት እና/ ወይም የፈቃደኝነት ቅጽ

ከላይ ያሉትን መረጃዎች ተገንዝበው ጥናቱ ውስጥ ለመሳተፍ ፈቃደኛ ሆነዋል?

ሀ) አዎን ለ) አይ ከዎን ከሆነ ፊርማ _____ ቀን……..

የመረጃ ሰብሳቢ ስም፡ _____ ፊርማ……

የቃለ መጠይቁ መታወቂያ ቁጥር……..

የተሰበሰበበት ቀን……..

የተሰበሰበው መረጃ ውጤት፡

ሀ) ሙሉ በሙሉ ተሞልቷል

ለ) አልተሞላም

ሐ) በከፊል ተሞልቷል

መ) እምቢ ተብሏል

በተቆጣጣሪው ተጣርቷል ፡ ስም _____ ፊርማ……..

ለተጨማሪ ማብራሪያ የዋናውን ተመራማሪ አድራሻ ይጠቀሙ ፡-

ስም፡ ዶ/ር ለሚ ባይሳ ስልክ፡ +251-921252730 ኢሜይል፡ lemiba2022@gmail.com

መጠይቅ

I. ስነ ህዝባዊ መረጃ

1. ዕድሜ.....

2. የትምህርት ደረጃ፡ ሀ) መፃፍና ማንበብ የማትችል ለ) የመጀመሪያ ደረጃ ትምህርት ሐ) የሁለተኛ ደረጃ ትምህርት መ) የኮሌጅ ትምህርት

3. የቅጥር ሁኔታ፡ ሀ) ተቀጣሪ ለ) ስራ አጥ ሐ) የግል ስራ

4. የወሊድ ሁኔታ፡ ሀ) ፈፅሞ ያልወለደች ለ) አንድ ልጅ ና ከዚያ በላይ የወለደች

II. የቀድሞ ወሊድ ታሪክ

5. የቀድሞው የወሊድ አይነት

ሀ) የማህፀን ወሊድ ለ) በቀዶ ህክምና ሐ) በማህፀን እና በቀዶ ህክምና

6. ከዚህ ቀደም የተሰጠ የሰመመን አይነት (ወስዳ ከሆነ)

ሀ) ከፊል ሰመመን (Spinal Anesthesia) ለ) ሙሉ ሰመመን ሐ) ከፊል ሰመመን (Spinal Anesthesia) እና ሙሉ ሰመመን መ) ለመጀመሪያ ጊዜ ለቀዶ ህክምና የመጡ

7. ከዚህ ቀደም በተደረገልዎት የሰመመን አሰጣጥ ዘዴ ደስተኛ ነዎት? ሀ) አዎን ለ) አይ

III. የጀርባ መረጃ እና የተመረጠው የሰመመን አሰጣጥ ዘዴ

8. ከዚህ ቀደም ለቀዶ ህክምና ወሊድ የሚጠቀሙ ስለ ሰመመን መረጃ ነበሮት?(ሆስፒታል ከመግባቶት በፊት) ሀ) አዎ ሚጃ ነበረኝ ለ) አይ ሚጃ አልነበረኝም

9. ሰመመንን በተመለከተ ያለዎት ዋናዉ የመረጃ ምንጭ ምንድ ነው?(አንዱን ብቻ ይምረጡ)

ሀ) ሐኪም ለ) አዋላጅ ነርስ /ነርስ ሐ) የቤተሰብ አባል/ ጓደኛ መ) ከግል ልምድ (ተሞክሮ)

ሠ) መፃፍ/ ቪዲዮ/ ቴሌቪዥን ፕሮግራም ረ) ኢንተርኔት ሰ) ሌላ ካለ ይግለፁ.....

10.የትኛውን የሰመመን ዘዴ ነው የመረጡት?

ሀ) ከፊል ሰመመን (Spinal Anesthesia) ለ) ሙሉ ሰመመን ሐ) የትኛውን የሰመመን አይነት እንደምመርጥ አላውቅም

11.የመረጡበት ምክንያት ምንድነው

ሀ) ከቀድሞው የከፊል ሰመመን (Spinal Anesthesia) / የሙሉ ሰመመን ጥሩ ተሞክሮ ስላገኘሁ	ለ) ከቀድሞው የከፊል ሰመመን (Spinal Anesthesia) / የሙሉ ሰመመን የተነሳ መጥፎ ስሜት ስለነበረኝ
ሐ) በቤተሰብ እና ዘመድ ምክር ምክንያት	መ) በቀዶ ህክምና ወቅት ነቅቼ መቆየት በመፈለጌ
ሠ) አካሄዱን ማየት ስለማልፈልግ	ረ) ጫጫታ እንዳልሰማ በመፍራት
ሰ) በመርፌ ምክንያት የጀርባ ህመምን ፈርቼ	ሸ) በድህረ ቀዶ ህክምና/ ከቀዶ ህክምና በኋላ የሚኖረው የህመም ስሜት አነስተኛ ስለሆነ
ቀ) በቀዶ ህክምና ሐኪም/ የሰመመን ሰጪ ሐኪም ምክር	

12.የትዳር አጋርሽ የምትወስጅውን የሰመመን ዘዴ መርጦ ነበር ?

ሀ) አዎ ለ) አይ ሐ) ገለልተኛ ነበር መ) ከነጋር አልነበረም

13.ለተራ ቁጥር 12 የሰጡት መልስ አዎን ከሆነ የትኛውን የሰመመን ዘዴን ነበር የመረጠው?

ሀ) ከፊል ሰመመን (Spinal Anesthesia) ለ) ሙሉ ሰመመን ሐ) ገለልተኛ

14.ያለብሽ የታወቀ ህመም ካለ

ሀ) የመተንፈሻ አካላት ህመም ለ) የልብ ህመም ሐ) የኩላሊት ህመም መ) የኦንዶክራይም ሆርሞን ህመም

ሠ) ሌላ ካለ ይገለፅ.....

15.ሰመመን ሲደረግልሽ የማትፈልጊው ውጤት የትኛው ነው?

ሀ) የአንጎል ስራ መዛባት ለ) ማቅለሽለሽ/ ማስመለስ ሐ) የሽንት ያለመውጣ

መ) የጀርባ ህመም ሠ) የራስ ምታት ረ) የአዕምሮ ጭንቀት ሰ) የታችኛው የጀርባ ክፍል ህመም ሸ) የሰውነት ሽባነት ስጋት

ቀ) የቀዶ ህክምና ሂደት የድምጽ ረብሻ መስማት

በ) በቀዶ ህክምና ሂደት የሆነ ነገር ማየት

ሌላ ካለ ይገለጽ……..