APPROVAL SHEET OF THESIS SCHOOL OF GRADUATE STUDIES

ADDIS ABEBA

As thesis research advisor, I hereby certify that I have read and evaluated this thesis prepared, under my guidance, by Yeshi Hussein entitled cesarean section delivery prevalence and associated factors among private and public hospitals in Addis Ababa I recommended that it can been submitted as partial fulfilling of the thesis requirement.

Major advisor	signature	date
Meselech Asegid (MPH, PHD candidate)	----------	----------

Co-advisor

Nigusse Asssefa (BSc, MPH, MSc)	----------	----------

As member of the broad examiner of the MPH thesis open defense examinations, we certify that we have read, evaluated the thesis prepared by Yeshi Hussein and examined the candidate. We recommended that the thesis with accepted as fulfilling the thesis requirement for **master's degree of public health.**

Chairperson	signature	date
----------	----------	----------
Internal examiner	signature	date
----------	----------	----------
External examiner	signature	date
----------	----------	----------

ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCES SCHOOL OF PUBLIC HEALTH

CESAREAN SECTION DELIVERY PRIVALENCE AND ASSOCITATED FACTORS AMONG PRIVATE AND PUBLIC HOSPITALS IN ADDIS ABABA; ACROSS SECTIONAL STUDY

By. Yeshi Hussein (BSc)

A THESIS REPORT SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILMENT FOR THE REQUAIERMENTS OF MASTERS DEGREE OF PUBLIC HEALTH.

DECEMBER,2020

ADDIS ABABA, ETHIOPIA

ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCES SCHOOL OF PUBLIC HEALTH

CESAREAN SECTION DELIVERY PRIVALENCE AND ASSOCITATED FACTORS AMONG PRIVATE AND PUBLIC HOSPITALS IN ADDIS ABABA; ACROSS SECTIONAL STUDY

By. Yeshi Hussein (BSc)

ADVISORS: MESELECH ASSEGID (MPH, PHD CANDIDATE)
NIGUSSE ASSSEFA (BSc, MPH, MSc)

A THESIS REPORT SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILMENT FOR THE REQUAIERMENTS OF MASTERS DEGREE OF PUBLIC HEALTH.

DECEMBER,2020

ADDIS ABABA, ETHIOPIA

ABSTRACT

Background

Caesarean section is a surgical technique in which a baby is brought through incisions made in the mother's abdomen. Caesarean section as a proportion of all births is used as an Emergency Obstetric Care indicator because it is a degree of use and access to a common obstetric intervention that avert maternal and neonatal deaths as well as preventing problems, such as obstetric fistulae. According to a 2007 analysis expected a global caesarean section rate of 15% and there was great regional difference: the lowest caesarean section rates were seen in Africa (3.5%) while the highest were in Latin America (29.2%).

Objective

This study was aimed to assess the prevalence, indications and factors affecting cesarean section delivery among mothers who gave birth in public and private health facilities of Addis Ababa from August,2019 to October ,2019.

Methods

cross sectional study was conducted to assess the prevalence of cesarean section delivery, indications and associated factors in selected private and public hospitals in Addis Ababa. Using simple random sampling method two hospitals from the public and four from private hospitals were selected. Using systematic random sampling method 642 mothers who gave birth in the selected hospitals were included in the study. Data was entered in to SPSS version 20 then data cleaning was done. Descriptive statistics were used for frequency and percentage, binary and multivariable logistic regressions was done to see relationship (associations) of the dependent variable with multiple factors. OR together with 95% CI and P-value <0.05 was used to measure statistical significance. The result is summited to Addis Ababa university school of public health, Addis Ababa health office and for those hospitals where the study was conducted.

Results

The study discovered that the prevalence of cesarean section in public hospitals was 46.7% and 72.3% in private hospitals in Addis Ababa. 31.8 % of cesarean section deliveries in private hospital were not performed due to maternal or fetal conditions(elective). Cesarean section delivery was significantly associated with: age of respondents [AOR of 0.26 0.89,0.57)95 % CI], partner work condition [AOR

=0.44 (0.26,0.76) 95%CI]. Economic status [AOR=5.02(1.21,20.70) 95%CI], operational history [AOR = 25.39(13.972.46.15)95 % CI], pregnancy history [AOR = 2.61(1.63,4.16) 95 % CI] and facility type [AOR =0.29(0.17,0.50) 95% CI]. Regarding to indications of CS, 96.1% of CS performed in public hospitals has been based on mother and fetal condition and about 3.9% was based on mothers' interest. In contrast, only 68.1% of CS delivery performed in private hospitals was based on indications recognized from mother and fetal condition.

Conclusions

The proportion of CS delivery was higher than the recommended one in both government and private hospitals. Delivering at government hospital was found to be more protective than private hospital for cesarean section delivery. Age of respondents, Partner work condition, economic status of respondents, history of previous operations, pregnancy history (multigravida) and facility type were factors significantly associated with cesarean section delivery.

Dedication

To the women of Ethiopia. Your strength, resilience, benevolence and optimism will continually serve as my inspiration.

Acknowledgements

First, I would like to thank almighty God, the Compassionate, the Most Merciful and Source of Knowledge and Wisdom, who best owed upon me the health, the power of communication and the courage to accomplish this thesis.

Next to God, I would like to express my sincere gratitude to my advisors Meselech Asegid and Nigusse Assefa for their continuous support of my work, for their patience, kindness, encouragement, motivation, eagerness, and immense knowledge. Their guidance helped me in all the time of conducting this research up to writing of the thesis.

I am also thankful to Addis Ababa City Administration Health Bureau, staff of the respected hospitals, for their facilitation of data collections in the city and their respective hospital. I would also like to extend my thanks to data collectors and supervisor for their commitment and dedication during data collection processes.

At last and most importantly, I would like to thank all the study participants, without whom the study would have not been a reality.

Table of Contents

List of Tables

List of Figures

List of Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
CI	Confidence interval
CS	Caesarean section
EmOC	Emergency obstetric care
HCW	Health care worker
MMR	Maternal mortality ratio
OR	Odds ratio
SVD	Spontaneous vaginal delivery
WHO	World Health Organization
WHOGS	WHO Global Survey of Maternal and Perinatal Health

1. 1INTRODUCTION

1.1. Background

Maternal death is the death of a woman while pregnant or within 42 days of cessation of pregnancy, irrespective of the time and site of the pregnancy, and from any cause related to or provoked by the pregnancy or its management but not from an inadvertent or secondary causes. Following AIDS, complications of pregnancy and childbirth are the second leading cause of death for women of reproductive age (age 15-49) through the world; where as in Africa and south Asia, it is the primary cause of death for women of reproductive age (3).

Maternal mortality shows, persistent inequality between men and women in terms of social status as well as access to health services, that indicates maternal mortality as truly human rights issue. Women have both a right to life and a right to health, and both of these rights need to be acknowledged completely so that maternal mortality can be reduced, as maternal mortality is also a sign of inequality between the development of wealthy and poor countries (5).

Maternal morbidity can be a result of assembly of causes like: Uterine prolapse, incontinence, anemia, depression and fistulae that can have short to long-term effects and can range in severity. Maternal effect is not limited to women, but also affects their families economically and socially through poverty, violence, isolation and divorce (11).

According to 2008 survey, Ethiopia was part of a group of six countries (including India, Nigeria, Pakistan, Afghanistan and the Democratic Republic of the Congo), which accounted for 50% of the world's maternal deaths (13). According to 2015 survey, Ethiopia's estimated MMR was 353, which interpreted to a lifetime risk of maternal death of 1 in 64 (1).

Around seventy percent of maternal mortality in Ethiopian hospitals is because of postpartum hemorrhage, infection, preeclampsia/eclampsia, abortion complications and obstructed labour (14). However, deaths due to hemorrhage, sepsis, abortion and obstructed labour have decreased over time, deaths due to preeclampsia or eclampsia are increasing Ethiopia has made significant strides in decreasing its MMR. Major barriers still exist in the Ethiopia with regards to access to and provision of antenatal and obstetric health services (15).

In 2009, the WHO published an updated handbook, Monitoring emergency obstetric care, in which it stated that in order to reduce maternal mortality, emergency obstetric care (EmOC) must be presented and reachable to all women and many studies have verified that maternal mortality is effectively reduced when quality EmOC services delivered by skilled attendants (16). The UN estimates that 15% of pregnant women will develop complications that require the use of EmOC (18).

Caesarean sections (CS) is a surgical practice in which a baby is delivered through openings made in the mother's abdomen and uterus. CS as a proportion of all births is used as one of EmOC indicator because it is a measure of use and access to a common obstetric intervention that avoids maternal and neonatal deaths as well as preventing problems, such as obstetric fistulae. Since 1985, the World Health Organization has stated that CS as a proportion of all births should be no less than 5% and no more than 15%, in spite of there being a lack of empirical evidence on an ideal range. Very low or very high CS rates are related with significantly increased morbidity and mortality rates (17).

According to a 2007 review estimated a global CS rate of 15% (1) and there was great regional difference: the lowest CS rates were seen in Africa (3.5%) while the highest were in Latin America (29.2%) (1). While CS rates are growing globally, even in developing countries (17) rates are increasing in urban centers but continued seriously low in rural settings. Hence, the poorest of poor women have the least access to possibly life-saving operation and also the highest maternal mortality rates (21).

CS rates have been growing gradually over the last several years both in developed and in developing countries (22). CS is a main surgical operation and has essential risks for both the mother and her child. In relationship to vaginal delivery, expected problems for the mother include increased rate of infection, longer healing time, significant bleeding and even death (23). For the infant, risks include increased uterogenic injury, increased breathing difficulties and even death (24, 25). CS delivery is also associated with direct and indirect economic expenses compared to alternative forms of delivery (26). Inappropriate CS delivery can result in a drain on a country's health resources and can have undesirable influence on health equity (27). In model world, CS should occur for all women who medically need the method, and as an outcome, should not be done when it is not medically indicated.

1.2. Problem statement

Different studies showed that there is a big difference in the prevalence of CS between urban and rural areas of the countries and between government and private health segments too. Beit that, the national CS rate (2%) continue much lower than what WHO planned as most obligatory CS rate of 5-15%(2) , there is increasing CS rate through institutions as well as regions in Ethiopia. In our study area, Addis Ababa, both the city level CS rate (21.4%) and institutional CS rate (15% for public & 46% for private) have appeared to be going higher than the preferred CS rate recommended for any health system by WHO(3). Actually , the WHO intensely states that any health system will not increase any profits from having the CS rate over 15%(4). This causes a concern whether CS practice is done unnecessarily and causes disadvantages to the health systems in Addis Ababa.

Therefore, this study will try to find the current prevalence of cesarean section among private and public hospitals and also tries to determine the possible factors leading to have cesarean delivery. In doing so it assesses the determinant factors of caesarean deliveries and its indications in public and private hospitals found in Addis Ababa.

1.3 Rationale of the study

Caesarean section can play an important role in undertaking a healthy mother and healthy baby in countries like Ethiopia where there is the highest maternal death rate. World health organization (4) has calculated that in a country a rate of 5-15% of births undergoing a CS is ideal and has medical indications for caesarean section and rates above this are unwise and pointless, strong financial burden and clinical risks on patients and healthcare systems. On the other hand, Caesarean delivery rate less than 5% also indicates unmet need of skilled delivery service. Big differences had been noted in cesarean section rates between a private and a public hospital in Ethiopia. Evidences are enlightening that an increasing trends of CS in Addis Ababa with significant suggestions for small number of healthcare (2, 3). However, up to date, there seems to be inadequate empirical evidence on the prevalence and determinants of CS in Addis Ababa. Furthermore, the increase in cesarean sections rate due to different determining factors nationally will affect health care costs to the country as well as the family, and the health of mothers and the new born babies.

Determining the prevalence of cesarean section is therefore an important issue and has its own contributions to improve maternal and new born baby's health and also to the overall health delivery system of the country. In addition, increasing knowledge about current indications will contribute to

reduce the prevalence of CS through correct information and advice to pregnant women and health workers.

Therefore, the results of this study will have contributions to be used by policy makers, health care planners, clinicians and health promotion programs.

2. LITRATURE REVIEW

Cesarean Section (CS), which involves an operative incision, has become a common mode of delivery worldwide. To achieve the millennium development goal of a 75% reduction in the maternal mortality ratio between 1990 and 2015, countries all over the world are investing more energy and resources into providing reasonable and acceptable maternal health services. One of the recommended ways of reducing maternal mortality is improving the availability, accessibility, quality, and use of services for the treatment of complications that arise during pregnancy and childbirth(4).

Access to caesarean sections can reduce maternal and neonatal mortality and complications such as obstetric fistula. However, use of caesarean section without medical indications can put women at risk of short-term and long-term health problems. The WHO advises that caesarean sections be done when medically necessary, but does not recommend a specific rate for countries to achieve at the population level(5).

In 1985, WHO has fixed the ideal rage to be between 10% and 15% and this has further contributed for the increasing popularity of CS both in developed and developing countries. Although most encourage CS as life-saving intervention for the mother and the baby, others also argue that this procedure is not free from dangers as with any surgery. CS can be key tool to successfully prevent maternal and perinatal mortality and morbidity as long as it is done based on medical explanations(4, 6). On the other hand, it has noted that CS lead to significant and even life-long complications such as disability or death mostly in countries with inadequate health facilities to undertake safe surgery and properly manage complications(4).

Recent trends have shown that CS rate has been increasing at a shocking rate globally. According to a recent study, CS rate has doubled between 2000 and 2015 from 12% to 21% of birth globally(6). This study found that CS procedure has been over consumed in middle-income and high-income countries while the procedure looks to be inaccessible in the poorest countries. Overall, there is an increasing fear on such intense rise of CS because of its risks as most countries have passed the ideal CS range suggested by WHO. For example, a study found that out of 169 countries globally, most of them (63%) had CS rate over the suggested rate while only 28% of them had CS rate below the suggested rate in 2015(6). At the worst case, this study found over 40% CS rate in 15 countries.

There are major regional differences regarding the rising trends of CS globally. According to this study, South Asia has the fastest growth while Africa has shown low increases. In South Asia, the yearly CS rate is 6.1% but there was rapid rise of CS from 7.2% in 2000 to 18.1% in 2015. In Africa, there was

low use of CS with only 2% per year. During 2000-2015, there was borderline rise in CS rate from 3% to 4.1% in West and Central Africa; and 4.6% to 6.2% in Eastern Africa. On the other hand, CS use seemed to be over used in North America, Western Europe, as well as Latin America and the Caribbean. Over the period 2000-2015, the same study(6) has found that CS use increased from 24.3% to 32% in North America; from 19.6% to 29.6% in Western Europe; and from 32.3% to 44.3% in Latin America and the Caribbean. In addition to differences across regions, there is also substantial differences across countries within the same region. In Asia, inter-province variations in CS use ranges from 4% to 64% while the rate varies from 7% to 49% between inter-states in India. More specifically, the study found that over 25% CS use in the USA, UK, Brazil and Bangladesh in 2015(6).

Observed proofs have acknowledged that a multi-faceted factor for such dramatic increase in CS use worldwide. A more recent study found that more births taking place in health facilities together with higher frequency of intervention through health institutions as primary reasons for such rapid rise of CS use globally (6). Overall CS rates are increasing globally due to mostly improvement in reproductive technology as well as a change in attitudes of staffs and maternal choice for an Elective Cesarean Section (ESC) as mode of delivery.

Furthermore, recent empirical studies have come across with different factors and features as factors and indications of CS use. The most common factors that have been associated with CS worldwide is attractively summarized in a recent study as premature rupture of the amniotic membrane, cephalo-pelvic disproportion, fetal distress, multiple pregnancy, breech presentation, maternal preference, birth weight, parity, maternal height and antenatal care use (7) Interestingly, this study has also recognized that the place of birth where a women choose public or private health facilities as contributing factor of CS. According to this study, previous delivery, breech presentation as well as fetal distress are the main CS indications. On the other hand, obesity, large infant size, prolonged labor, multiple pregnancy and premature labor are thought to be the common complications related to CS(8). The study further pointed out that the most common reasons which encourage women to look for CS are past negative experiences of vaginal birth, or fear of labour pain or of the effects of labour such as pelvic floor damage, urinary incontinence, reduced quality of sexual functioning (6, 9, 10). For example, low-risk pregnancies, previous use of CS, income and place of birth have been factors associated with CS mostly in China and Brazil (6, 9). This study also found income or wealth as major factor of CS use. It found that the richest women were 6 times more likely to go for CS compared to the poorest women. CS use was found to be 1.6 times more common in the private health facilities compared to public health

facilities. According to this study, one reasonable explanation for such trends could be critical shortage of health facilities and staffs in vulnerable and rural population.

Ethiopia is no exception to such development. In Ethiopia, although still very low, recent studies have demonstrated a relatively increasing CS rate since 2000. Based on data from the Ethiopia Demographic and Health Surveys (DHS) conducted between 2000 and 2016, a recent study shows that the national CS rate in Ethiopia has reported an increasing trend of CS from 0.7% in 2000 to around 2% in 2016. The study documents major differences of CS rates across administrative regions with Addis Ababa recorded the highest CS rate of 21.4% in 2016. According to this study, CS rates were the highest among mothers in urban areas, first births, mothers with higher education and higher income. A recent study also reported that CS rate is increasing from 24.5% in 2002 to 32.8% in 2006 in St. Paul's Millennium Medical College (SPHMMC), the second largest public hospital in Addis Ababa(11) . Another study also reported a 5% substantial level difference in the proportion of CS between government teaching hospital (31.1%) and private hospital (48.3%) in Addis Ababa (3).

Overall, the above-mentioned evidences have suggested that there is a rapid increase in CS use (9, 12,14) and this creates concerns among countries as the rate go beyond the recommended ideal range(13, 15). Perhaps, this suggests that there is growing use of unnecessary CS and this need clinical interventions(2, 16). Thus, there is a need to conduct a rigorous research to provide updated insights for guiding policy makers towards planning effective interventions and reduce unnecessary use of CS.

2.1. Research question

1. What is the current prevalence of cesarean section in private and public hospitals in Addis Ababa?
2. What are the association factors for cesarean delivery in private and public hospitals in Addis Ababa?

Hypothesis: the prevalence of cesarean section in private hospital is the same with prevalence of cesarean section in public hospitals.

The conceptual frame work for this study was developed by reviewing literatures on factors influencing delivering by caesarean section.

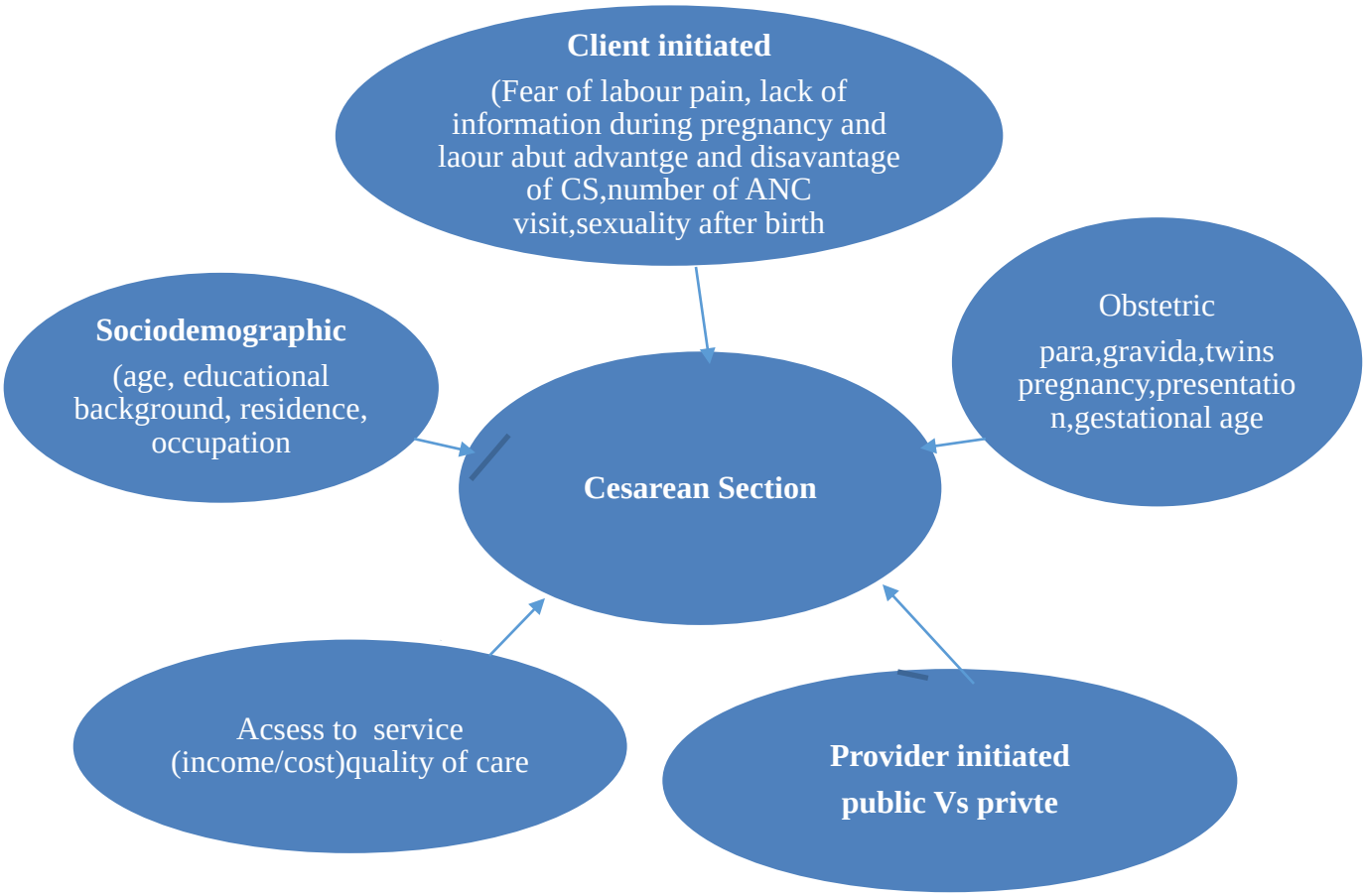


Figure: 2.1. Conceptual frame work to study prevalence and determinants of cesarean section in Addis Ababa health sectors.

3. Objectives

3.1.General objective

- To assess the prevalence, indications and factors affecting cesarean section among mothers who gave birth in public and private hospitals in Addis Ababa.

3.2.specific objectives

- To assess the prevalence of cesarean section among mothers who gave birth in p private and public hospitals in Addis Ababa.
- To describe indications of cesarean section among mothers who gave birth in p private and public hospitals in Addis Ababa.
- To identify factors associated with cesarean section among mothers who gave birth in private and public hospitals in Addis Ababa.

4. METHODOLOGY

4.1.Study design

Cross sectional study was conducted to assess the prevalence of CS, indications and associated factors in selected private and public hospitals in Addis Ababa.

4.2.Study area and period

Addis Ababa is the capital city of Ethiopia and placed in the central part of the country with the population magnitude of 4milloin as of 2017. This city holds 527square kilometer of area in Ethiopia There are 10 sub cities in the city, and there are 12 publics and 21 Private hospitals in the city, both hospitals are condensed in to some sub cities, Hospitals and some MCH clinics are the institutions providing services concerning CS in Addis Ababa. This study was conducted from August 2019 to October 2019.

4.3.Source population

The source population was all mothers who gave birth in Addis Ababa during the study period.

4.4.Study population

The study population was all mothers who gave birth in selected hospitals during the study period.

Exclusion criteria Those hospitals who started providing delivery service less than five years are excluded from the study, those mothers who gave birth during the study period but have hearing problems and mothers who refused to participate (to be interviewed).

Inclusion criteria: those hospitals who are giving delivery service for more than five years, mothers who have hearing ability and those who are agreed to consent.

4.5 Sample size

The sample size (**n**) required for this study was calculated using formula for a single population proportion (**p**) by taking the proportion of Caesarean delivery in government hospital and private hospitals/ MCH clinics of in Addis Ababa. The proportion of cesarean section in private hospitals was 41.7% and in public /government hospitals was 20.6% (17) , 95% level of significance and 4% margin of error or precision(d). The sample size for private hospitals was 584 and for the government hospitals was 396 by taking the largest sample size and considering 10% non-response rate the final sample size was 642.

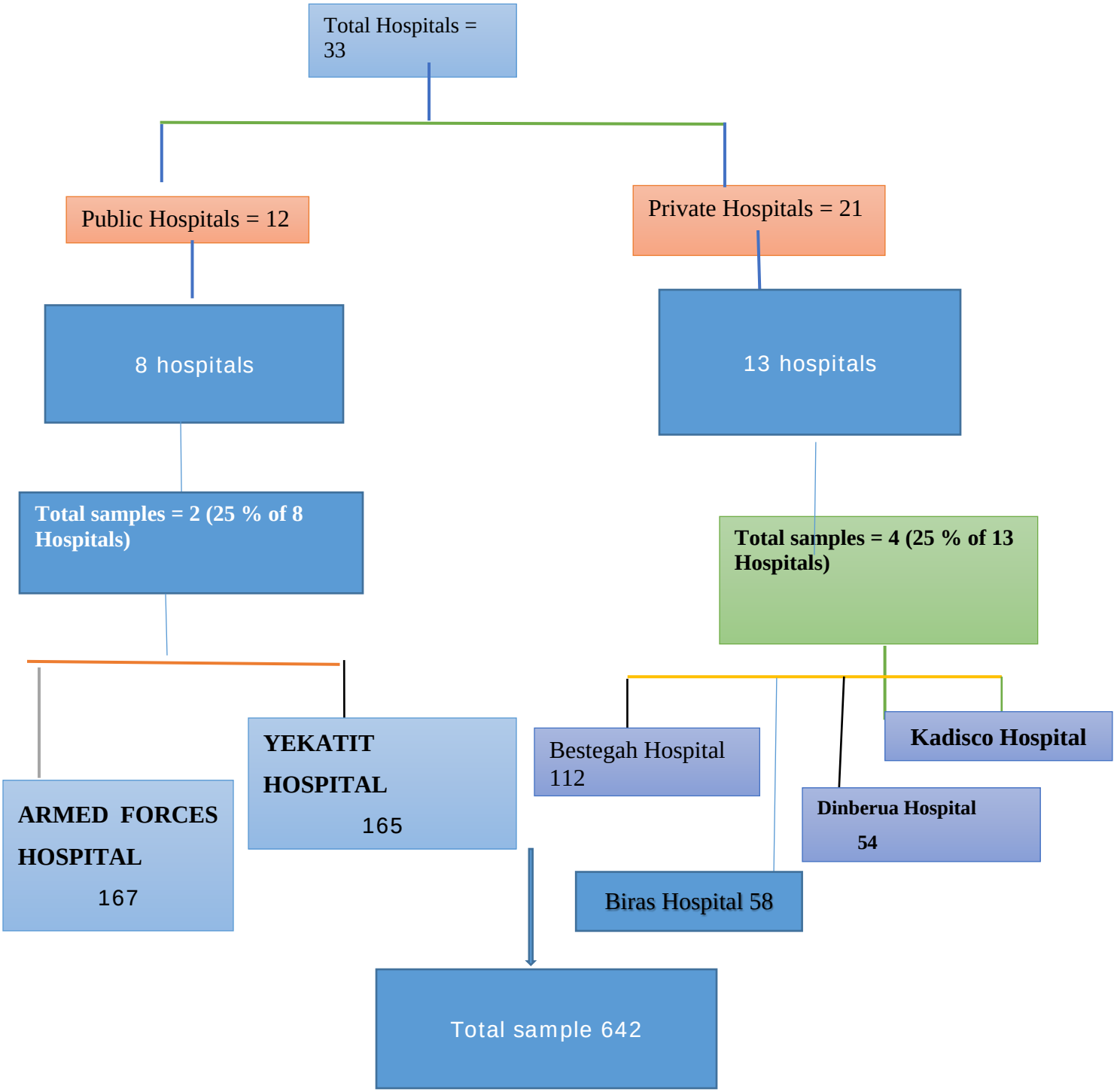
$$n = \frac{[Z_{\alpha/2}]^2 \, p\,(1-p)}$$

d^2

4.5.Sampling procedures

There are 12 publics and 21 private hospitals in the city of Addis Ababa. Those who started delivery service recently excluded from the study (five years) because they might lack appropriate number of clients as those of senior one. The plan of this study was at least to include about 25% of the private and 25% of the public hospitals in the city due to time and resource constraints to do the study on the total. After listing both public and private hospitals separately, using simple random sampling method two hospitals from the public and four hospitals from private hospitals were selected after k was determined. The sample size 642 of the study participants were determined using systematic random sampling method from mothers who gave birth during the study period.

Figure 1: Sample selection strategy



4.6. Data collection procedure

Data collection was carried out by trained nurse data collectors after structured questioners were developed by reviewing standard question formats and the conceptual frame work in English version and translated to Amharic version. Then data were collected using the Amharic version questioners after informed consent was obtained from each participants.

Dependent variable (outcome variable) – cesarean section delivery (yes, no)

Independent variable – sociodemographic, access to the service, Client initiated, Obstetric Provider initiated

4.7. Term and operational definitions (4)

Elective cesarean section- delivering a mother through CS without medical indications

Private health sector- owned by individuals, other than the government

Public health sector – owned by the ruling government.

Quality of care – is the extent to which health care services provided to individuals to improve health outcomes.

Number of ANC visit recommended by WHO - minimum of 8 contacts

Provider – a person or an organization who is giving the service

4.9. Data quality management

The questionnaire was initially prepared in English, and translated to Amharic for field purpose. Then the Amharic version was translated back to English to check for any contradictions or distortion in the meaning of words or concepts. Before data collection, the investigator provided training and guideline for data collectors and supervisors on how to interview The instruments was pre-tested in similar circumstances in order to assure whether the instrument is efficient enough to meet the objective of the study or not. (to check for content validity) Consequently, based on the feedback obtained from the pre-test the questionnaire was reviewed. Each data collector was assigned in specific hospital and by doing data cleaning during the interview for any missing information and appropriateness and also data entry was conducted by two different individuals (double data entry).

4.10. Data Analysis procedures

Data was entered in to SPSS version 20 in order to analysis it through statistical and multivariable logistic regressions to see the relationship (associations) of the dependent variable with multiple factors. OR together with 95% CI and P-value <0.05 was used to measure statistical significance.

4.11. Ethical consideration

Ethical approval to conduct the study was obtained from Research and Ethical Committee of the School of Public Health College of Health Sciences, Addis Ababa University. A support letter was provided to the respective organization. Addis Ababa Health Bureau and letter of collaboration was written by Addis Ababa Health Bureau after the proposal was reviewed and approved by its research ethics review committee. Communication with the hospital administration was through formal letter obtained from the regional health bureau. The data obtained from the mothers was kept confidential.

4.12 Dissemination plan

. The result is summited to Addis Ababa university school of public health, Addis Ababa Health Bureau and for those hospitals where the study was conducted.

5. Result

A total of 642 eligible respondents were successfully participated in the study that made the response rate of 100%. Three hundred thirty-two (51.7%) of the respondents were from public hospital and 310 (48.3%) of them were from private.

5.1. Sociodemographic characteristics of study participants

As indicated in table 1. 571(88.9%) of respondents were from Addis Ababa and about the majority 304(47.3%) of respondents were in the age group of 25-29 years followed by 30-34 age group which accounts 180(28%).

Regarding to marital status almost all 630 (98.1%) of the respondents were married. Only 10(1.6%) of the respondents found to be single.

Table 1. Sociodemographic characteristics of study participants, Addis Ababa, 2019

Variable	Public Hospitals n (%)	Private Hospitals n (%)
Residence		
Addis Ababa	280(84.3)	291(93.9)
Out of Addis Ababa	52(15.7)	19(6.1)
Age category		
15 – 19	7(2.1)	0
20 – 24	45(13.6)	32(10.3)
25 – 29	166(50.0)	138(44.5)
30 – 34	84(25.3)	96(31.0)
35 – 39	30(9)	44(14)
Marital Status		
Married	326(98.2)	304(98.1)
Single	6(1.8)	4(1.9)
Educational status		
Illiterate	29(8.7)	3(1.0)
Primary School	110(33.1)	16(5.2)
Secondary School	79(23.8)	72(23.2)
Diploma	68(20.5)	80(25.8)
Degree and above	49(3.8)	139(44.8)

Partner educational status		
Illiterate	10(3.0)	0
Primary School	61(18.4)	10(3.2)
Secondary School	66(19.9)	51(16.5)
Diploma	68(20.5)	58(18.7)
Degree and above	122(36.7)	190(61.3)
Cooperative wealth status		
Very poor and poor	64(19.3)	21(6.6)
Average	228(68.7)	196((63.2)
Well to do and rich	40(12)	93(30)

The result shows that the major education of women delivered in government hospital was Primary School which accounts 33.1% and only about 3.8% of them hold degree and above. Whereas in private hospitals the majority of women had degree and above level of education which accounts 44.8%, only about 1% of them were illiterate. The education level of spouses revealed in similar fashion to women's education level in private and public hospitals.

As shown in table 1, even though the dominant economic status in both private and government hospitals was those who were at average economic status, very poor and poor accounts about 19.3% in government hospitals and only 6.6% private hospitals. In reverse rich and well to do accounts 30% in private hospitals and only accounts about 12% in government hospitals.

5.2. Obstetric history of study participants

Table 2: Obstetric history of study participants, Addis Ababa, 2019

Variable	Public Hospitals n (%)	Private Hospitals n (%)
Had operation previously		
Yes	101(30.4)	149(48.1)
No	231(69.6)	161(51.9)
Number of previous operations		
1	46(46)	58(38.7)

2	32(32)	57(38)
3	10(10)	24(16)
4 and above	12(12)	11(7.3)
Mode of delivery		
CS	155(46.7)	224(72.3)
SVD	177(53.3)	86(27.7)
Number of Pregnancy		
1	139(41.9)	128(41.3)
2	112(33.7)	105(33.9)
3	45(13.6)	45(14.5)
4 and above	35(10.5)	32(10.3)
Abortion history		
Yes	70	74
No	261	230
ANC follow up		
Yes	309(93.1)	290
No	23(6.9)	15
Place of ANC follow up		
This hospital	241(72.6)	244(78.7)
Another place	91(27.4)	66(21.3)
Indication of CS		
Maternal condition	58(32.2)	64(26.1)
Fetal condition	115(63.9)	103(42.1)
Mother preference	7(3.9)	78(31.8)
Decision time for CS		
At 36 week	7(4.67)	17(8.85)
At38 week	90(60)	93(48.43)
During labor	53(35.33)	82(42.7)

As revealed on table 2 the previous CS history during the collection of this data were 30.4% in public

hospitals and 47.4% at private hospitals in Addis Ababa. High complication was expected as many of the respondents had more than once CS history.

The study shows that the prevalence of CS in public hospital was 46.7% and in private hospitals 72.3%. Additionally, the result shows that about 31.8% of mode of delivery in private hospitals were done base on mothers' preference, which is only 3.9 % in public hospitals. This means only 40.5% of CS delivery has been performed based on indications identified from mother and fetal condition in private hospitals. Furthermore, comparing to those from public hospital, respondents from private hospitals had decided CS earlier.

Table 3. Advantage of Cesarean Section delivery as reported by study participants, Addis Ababa, 2019

Response	Frequency	Percent
Decrease labor pain	241	50.84
Doesn't affect sexual health	46	9.7
No delivery related complications	128	27
No neonatal health problems	59	12.44
Total	474	100.0

The result shows that 50.84% of the respondents were believed CS decrease labor pain, 9.7% believed that it doesn't affect sexual health and 27% believed that it has no delivery related complications.

Table 4: Disadvantage of Cesarean Section delivery as reported by study participants, Addis Ababa, 2019

Response	Frequency	Percent
Complications/ sepsis, hemorrhage	202	46.54
Neonatal complications	113	26
Increased cost	78	17.97
Other health problems	41	9.44
Total	434	100.0

The result shows that 46.54% of the respondents were believed CS has complications (Sepsis, Hemorrhage pain), and 26% believed that it has Neonatal complication and about 17.97% believed that it has increased costs (Table 4)

5.3.2. Bivariate and Multivariate logistic regression

A bivariate and multivariate logistic regression was used to identify variables associated with mode of delivery. Accordingly, in the bivariate/unadjusted analysis, mode of CS was associated with age, educational status of respondent, work condition of respondent, partner educational status, partner work condition, place of ANC follow up and facility type (Table 5)

Table 5. Bivariate and Multivariate analysis of factors associated with Cesarean Section among respondents Addis Ababa, 2019

Variables	Mode of delivery		**Crude OR (95% C.I.)**	**Adjusted OR (95% C.I.)**
	CS (%)	SVD(%)		
Age of respondents				
15-24	36.9	63.09	5.32(.66,10.62)	0.27(0.89,0.57)
25-34	60.3	39.66	2.05(1.17,3.59)	0.49(0.23,1.03)
35-44	75.67	24.32	1	1
Maternal education				
Illiterate and primary	51.2	48.8	2.14(1.37, 3.32)	1.18(0.56,2.52)
Secondary and diploma	56.85	43.15	1.70 (1.16, 2.51)	0.74(0.43,1.29)
Degree and above	69.19	30.81	1	1
Maternal work condition				
Government	53.22	46.774	1.22(0.78,1.8)	0.54(0.28,1.04)
NGO and private	62.12	37.87	0.84 (0.59,1.20)	0.77(0.45,1.31)
House wife/student	58	41.93	1	1
Partner education				
Illiterate and primary	46.91	53.08	1.99 (1.22,3.27)	0.81(0.37,1.81)
Secondary and diploma	56.79	43.2	1.34 (0.95,1.89)	0.84(0.51,1.38)
Degree and above	63.83	36.16	1	1

Partner work condition				
Government employee	55.08	44.91	1.59 (1.08,2.33)	1.00(0.06,1.79)
NGO and private organization	54.01	45.40	1.62 (1.10,2.38)	0.45(0.26,0.77)
Self-employee	66.03	33.96	1	1
Economic status				
Poor	60.56	39.43	0.33 (0.12.0.86)	5.02(1.21,20.70)
Medium	59.96	40.03	0.33(0.14,0.79)	2.51(0.69,9.14)
Rich	33.33	66.66	1	1
Previous cesarean section				
Yes	91.60	8.40	0.56 (0.03,0.09)	25.39(13.97.46.16)
No	37.94	62.05	1	1
RH problem				
Yes	77.41	22.58	0.39 (0.20,0.72)	1.10(0.48,2.56)
No	57.118	42.88	1	1
ANC follow up				
Yes	60.27	39.73	0.43 (0.22,0.84)	1.86(0.77,4.53)
No	39.47	60.52	1	1
Place of ANC follow up				

This hospital	63.91	36.08	0.44 (0.30,0.63)	1.61(0.98,2.66)
Other place	43.50	56.49	1	1
Pregnancy history				
Prim gravida	55.80	44.19	1.26 (0.91,1.73)	2.61(1.64,4.17)
Multigravida	61.33	38.66	1	1
Facility type				
Government	46.68	53.13	2.97 (2.14,4.13)	0.30(0.18,0.50)
Private	72.25	27.74	1	1

AOR = Odds ratio

After adjusting for confounding by multivariate analysis, factors that remained significantly associated with mode of delivery were: age of respondents, Partner work condition, economic status, previous operational history, pregnancy history and facility type.

Those mothers between the age of 15 to 24 were 0.26 times less likely to have Cesarean delivery when compared to mothers whose age were 35 to 44 at [AOR of 0.26 0.89,0.57)95 % CI]

Mothers whose partners were working at NGO and private organizations had 66% [AOR =0.44 (0.26,0.76) 95%CI] more likely to deliver by CS than those who are working in government organizations and student/jobless.

Mothers who consider themselves as poor were more likely to have cesarean section delivery when compared with those who consider themselves as well to do and rich [AOR = 5.02(1.21,20.70) 95%CI].

The study also found mothers who has previous cesarean section had 25.39 times more likely to have Cesarean Section delivery than those who had no previous cesarean section [AOR = 25.39(13.97.46.15)95 % CI]

Those mothers who are primi gravid are 2.61 times more likely to have cesarean section delivery than multi gravid [AOR = 2.61(1.63,4.16) 95 % CI]. Finally, those who deliver at government facility were 0.29 times less likely to have cesarean section delivery when compared with those deliver at private facility [AOR =0.29(0.17,0.50) 95% CI].

6. DISCUSSIONS

Cesarean Section is a life-saving technique for both the mother and the baby. Delay in deciding for it may be disadvantageous for both. On the other hand, early and wrong decision may increase the maternal and fetal morbidity and mortality. The purpose of this study was to determine the magnitude of CS delivery and to identify factors leading to CS.

This study has attempted to assess prevalence, indications and associated factors among women who had CS in Addis Ababa private and public hospitals. A total of 642 (332 from public hospitals and 310 from private hospitals) participants have been participated in the interview.

The study discovered that the prevalence of CS was 46.7% in public hospitals and 72.3% in private hospitals in Addis Ababa. Two hundred twenty-four (72.2%) of CS delivery was performed in private hospitals and 78 (31.8%) was based on client preference.

The study found that, factors associated with cesarean section delivery were age of respondents, partner work condition, economic status, previous cesarean section delivery, pregnancy history and facility type

The study revealed that the prevalence of CS in public hospitals was 46.7% and 72.3% in private hospitals in Addis Ababa during the collection of this data. The result opposes with World Health Organization stated that CS as the percentage of all births should be no less than 5% and no more than 15%. Very low or very high CS rates are related with significantly increased morbidity and mortality rates (18, 19) not only the World Health Organization the result was higher than results found in different regions of Ethiopian as well as studies done in Addis Ababa a different time (3, 11, 12). According to a study done in Harar hospitals the prevalence of CS in private hospitals was 58.7% related to the 26.6% prevalence in public hospital(12, 20) . Prevalence of cesarean delivery in Addis Ababa teaching government hospitals and the non-governmental hospitals 31.1% and 48.3%, respectively(Hussein Aman, 2014 #11) . Therefore, this study revealed that cesarean delivery is increasing.

Regarding to indications of CS, 96.1% of CS performed in public hospitals has been based on mother and fetal condition and about 3.9% was based on mothers' interest. In contrast, only 68.1% of CS delivery performed in private hospitals was based on indications recognized from mother and fetal condition.as of a study done in India the collective reasons for Caesarean Sections were Fetal Distress (30.77%) and repeat Caesarean Sections (29.23%)(21). Maternal indications accounted for 66% and

fetal indications for 34% of cesarean deliveries. In the public and not-for-profit sectors, approximately 85% of cesareans were emergencies (and 15% electives), compared with 47% in the for-profit sector (22). Around 40% cesarean delivery in teaching hospitals were due to none reassuring fetal heart rate pattern, previous cesarean section where as cephalo-pelvic disproportion account for 51.3% and 59.6% of the indications in non-governmental hospitals. But When individual indications were analyzed between the two groups, previous cesarean section was higher in the non-governmental hospitals, 29.3% vs. 14.6%, ($P<0.05$), and non-reassuring fetal(3). The common indications for primary cesarean delivery were similar with majority of study results, but the repeat cesarean delivery rate was found to be different in different study results. Most of the cesarean deliveries were performed due to none reassuring fetal heart rate pattern, previous cesarean section scar, cephalo-pelvic disproportion, big baby and elective cesarean section.

This study shows that about 31.8% CS performed in private hospitals have been done without medical indication only to look after mother's interest and/or for business purpose. This was against WHO approval that says, CS should be take place for all women who medically need the method, and as a consequence, should not be done when it is not medically indicated (23). World health organization (4) has suggested that in a country a rate of 5-15% of births go through a CS is ideal and has medical indications for caesarean and rates above this are inappropriate and unnecessary, imposing financial burden and clinical risks on patients and healthcare systems(19, 24). Maternal demand added to 7.5% of the indication in the non-governmental hospitals compared to none in the teaching hospitals (3). Optional cesarean delivery rate was 20.2% for women aged 45.0 years or older(25). Carrying out a CS without positive medical need can result in damage. D o i n g too much CSs is also a drain on health care resources, a problem which is only worsened in low income countries. Additionally, a woman who is delivered by means of CS in her first pregnancy is at increased risk of requiring a CS in the following pregnancies, which as a result places more tension on the health care system. Thus, a very concerning domino effect of performing too much CS can result(18, 26) There is no typical classification system for cesarean indications, and indications are not identical, can be many or associated to each setting.

The result shows that age of respondents, Partner work condition, economic status, previous operational history, pregnancy history and facility type significantly associated with CS. The most common factors that have been associated with CS worldwide is premature rupture of the amniotic membrane, cephalo-pelvic disproportion, fetal distress, multiple pregnancy (7), breech presentation, maternal preference, birth weight, parity, maternal height and antenatal care use. whereas, according to a study made in

Adigrat ANC follow up and advanced maternal age are a risk factor for cesarean deliver(13). A study done in Addis Ababa MCH hospitals are Maternal request, unfavorable cervix,poor intrauterine status ,decrease trial of scar, failed inductions(3). Being rural resident, having a monthly family income of 4000 ETB (200 USD) or more, previous CS delivery, parity of three or more, fetal birth weight of greater than 4000, private hospital delivery, and private clinic/hospital ANC visit were found significantly linked to cesarean section delivery in the bivariate logistic regression. Being a self-employed by occupation in the bivariate logistic regression model was protective against CS delivery(12). Residence (may be due, maternal age and presence of risk factor showed significant association with cesarean section. Likewise, the odds of undergoing cesarean section. Similarly, women in the age category of 15–19 had 37 % lower probability of CS delivery compared to age category of 20–34 years. Additionally, the odds of experiencing cesarean section were higher if the woman had abnormal presentations. Similarly a women having history of previous cesarean section and fetal weight of 4000gm and more were more likely to give birth by cesarean section(14). Higher family income and Previous cesarean section in the study setting was associated with cesarean section delivery which was supported by findings from different studies reported from different settings also associated with current cesarean section delivery in the study.

Strength and Limitation

6.2.1. Strength

- Data collection was done by trained professions (nurses)
- Multiple regression models were used to control possible confounding.
- The conduction of pretest, structured questionnaire was the strength of the study

6.2.2. Limitation

- Study was conducted only in city part of the community and didn't cover all health sectors in the city.
- The study did not involve men that information about the husband was indirectly obtained from women.
- Respondents might have not told us their real working status and income

7. CONCLUSIONS AND RECOMMENDATIONS

7.1. Conclusions

The proportion of CS delivery was higher than the recommended one in both government and private hospitals. Delivering at government hospital was found to be more protective than private hospital for cesarean section delivery. Age of respondents, Partner work condition, economic status of respondents, history of previous operations, pregnancy history (multigravida) and facility type were factors significantly associated with cesarean section delivery.

7.2. Recommendations

- Design program/stakeholders aimed at creating awareness of community regarding to complication of CS delivery to minimize non medically indicated CS at urban area.
- Design a control and monitoring mechanism of minimizing non-medical indication CS and its risks.
- Interventions on prevention of unnecessary primary cesarean section to avoid repeat cesarean section, advocating vaginal delivery for a woman who had previous cesarean section if medically appropriate.
- Health education for pregnant mothers on the risk of unnecessary cesarean section during antenatal care visits will also be important in gaining clients rational decision on the mode of delivery.

References

1. Stanton CK 2006)Béhague DP VC, Barros FC. Consumer demand for caesarean sections in Brazil: informed decision making, patient choice, or social inequality? A population based birth cohort study linking ethnographic and epidemiological methods. BMJ. 2002;324:942-5.
2. Kathryn Chu1 HC, Fernando Maldonado,TshitengMashant etal CesareanSectio Rates and Indications in Sub-Saharan Africa:. 2011; 7 (9):44484.
3. Hussen Aman SNaLY. Cesarean delivery practices in teaching public and non-government/private MCH hospitals. Addis Ababa Ethiop J Health Dev. 2014;1(28).
4. WHO. WHO Statement on Caesarean Section Rates. 2015.
5. VivekNama FW. Ethics Caesarean section on maternal request: is justification: necessary? . The Obstetrician & Gynecologist 2011; 13:263–269.
6. Ties Boerma CR, Dessalegn Y Melesse, Aluisio J D Barros, Fernando C Barros, Liang Juan, etal. AGlobal epidemiology of use of and disparities in caesarean sections. The Lancet. 2018;10(10).
7. Villar J CG, Zavaleta N, Donner A, Wojdyla D, et al. . Maternal and neonatal individual risks and benefits associated with caesarean delivery. BMJ. 2007;335: 1025.
8. Souza JP GA, Lumbiganon P, Laopaiboon M, Carroli G, et al. Caesarean section without medical indications is associated with an increased risk of adverse short-term maternal outcomes. BMC Med. 2004–2008; 8 (71).
9. Selina MW Pang DTL, TY Leung, CY Lai, TK Lau and Tony KH Chung. Determinants of preference for elective caesarean section in Hong Kong Chinese pregnant women. Hong Kong Med J. 2007; Vol 13 (April 2007).
10. Patrick J. Culligan Æ John A. Myers RPGÆLB, Stephan F. Gohmann Æ Troy D. Abell. Elective cesarean section to prevent anal incontinence and brachial plexus injuries associated with macrosomia. Int Urogynecol J. 2005; (2005) 16: 19–28. .
11. Tamara O.M. Kuzma. Caesarean Sections in a National Referral Hospital in Addis Ababa, Ethiopia: Trends, Predictors and Outcomes university of Alberta; 2016
12. Tsega Fikirte MB, Dessie Yadeta and Merid Melkamu Mengesha Prevalence of Cesarean Section in Urban Health Facilities and Associated Factors in Eastern Ethiopia: Hospital Based Cross Sectional Study. Preg Child Health. 2015;2(3).

13. Samson Kahsay G, Alem Gebremariamand Betel Birhane. Determinants of Caesarean Deliveries and its Major Indications in Adigrat Hospital, Northern Ethiopia. epidemiology (sunnyvale. 2015;5(3).

14. Fantu Eyowas Abebe AWG, Ashebir Negasi Kidane, and Gizached Aynalem Eyassu. Factors leading to cesarean section delivery at Felegehiwot referral hospital, Northwest Ethiopia: a retrospective record review Reproductive Health. 2016 13:6 (DOI 10.1186/s12978-015-0114-8).

15. VivekNama / Florence Wilcock. Ethics Caesarean section on maternal request: is justification: necessary? . The Obstetrician & Gynecologist 2011. 2011;13:263–9.

16. A R. Developing criteria for Caesarean Section using the RAND appropriateness method. BMC Pregnancy and Childbirth. 2010;10 (52).

17. Gebremedhin S. Trend and socio-demographic differentials of Caesarean section rate in Addis Ababa, Ethiopia:
analysis based on Ethiopia demographic and health surveys data. Reproductive Health. 2014;14(11).

18. Bhandari TR DG. Strategy for Reducing Maternal Mortality in Developing Countries. NJOG. 2014;17(1):8-16.

19. WHO Statement on Caesarean Section Rates Geneva: World Health Organization; 2015. Available from: http://apps.who.int/iris/bitstream/10665/161442/1/WHO_RHR_15.02_eng.pd.

20. Fikirte Tsega BM, Yadeta Dessie and Melkamu Merid Mengesha. Prevalence of Cesarean Section in Urban Health Facilities and Associated Factors in Eastern Ethiopia: Hospital Based Cross Sectional Study Child Health 2015;2:3.

21. Jaspinder Kaur SS, and Kawaljit Kaur. Current trend of caesarean sections and vaginal births. Pelagia Research Library 2013; 4(4):196-202

22. Nebreed Fesseha AG, Mihret Hiluf, Yirgu Gebrehiwot,, Patricia Bailey AVERTING MATERNAL DEATH AND DISABILITY International Journal of Gynecology and Obstetrics 2011;106–111.

23. Paxton A BP, Lobis S, Fry D. I. . Global patterns in availability of emergency obstetric care. Int J Gynaecol Obstet. 2006; 93(3):300-7.

24. Trends in maternal mortality Geneva:: World Health Organization; 2015 [updated 2015]. Availablefrom:http://apps.who.int/iris/bitstream/10665/194254/1/9789241565141_eng.pdf?ua=1

25. Julia Timofeev M, Uma M. Reddy, MD, MPH, Chun-Chih Huang, PhD, Rita W. Driggers,MD, Helain J. Landy, MD, and S. Katherine Laughon, MD, MS. Obstetric Complications, Neonatal Morbidity, and Indications for Cesarean Delivery by Maternal Age Obstet Gynecol. 2013;122(6): 1184–1195.

26. Hardee K GJ, Blanc AK. Maternal morbidity: Neglected dimension of safe motherhood in the developing world. Glob Public Health. 2012;7(6):603-17.

Appendix

1.1. Information sheet

Title of the study: Assessment of the prevalence, indications and factors affecting cesarean section between women's who gave birth in health facilities of Addis Ababa. A cross sectional study.

Dear participants,

My name is Yeshi Hussein; I am MPH Student working on a thesis research project as partial fulfilment. The research mainly focuses on cesarean section prevalence, associated factors and determinants.

Purpose of the study: Caesarean section can play a vital role in achieving a healthy mother and healthy baby in countries like Ethiopia where there is the highest maternal death rate. Therefore**,** determining the prevalence of cesarean section is an important issue and has its own contributions to improve maternal and new born baby's health and also to the overall health delivery system of the country. Therefore, the results of this study will have contributions to be used by policy makers, health care planners, clinicians and health promotion programs.

Confidentiality: We will use the data you gave us only for this study. We will not use your information for purposes other than the study.

Risks: No serious health hazard will be caused due to your participation in the study and if you are not participated you are not going to be excluded from any services.

Benefit: no direct benefit for participating in the study for you as an individual but it will contribute much for improving health of mothers.

Procedure: If you agree to participate in the study it will take you 10 -15min, you will be asked about 50 close end questions that are related to the issue.

Agreement: After reading and listening about the study procedures and other related issues done in the study, you will kindly be requested to put your signature of agreement. Your signature indicates that your participation is only based on your volunteer participation.

Communication In case you have any questions, unclear ideas and doubt about the study, you can use the following addresses:

Yeshi Hussein (Tel +251911874735, E mail yeshi1245@yahoo.com)

Consent form

I understand that the purpose of the study to take part in the study. I am aware of the possible risk and benefits of this study. I know that my participation in this study is voluntary. I agree to take part in this study.

SIGNATURE: ----------DATE: ----------

Questionnaire (English version)

General information

1. Date of Interview _____
2. Study ID code _____
3. Patient's medical record number _____
4. Name of the hospital_____

Part 1: Socio-demographic				
S. No.	Question	Options	Code	Skip pattern
101	Where is Your residence?	1. Addis Ababa 2. Out of Addis Ababa		
102	How old Are you?	1. _____Years		
103	What is your current marital status?	1. Married 2. Never married 3. Separated 4. Divorced 5. Widowed		
104	What is your educational status (level)	1.Illiterate 2.Primary education 3.Secondary education 4.Diploma holder 5.Degree holder 6.Above degree		
105	What is your partners educational status (level)	1.Illiterate 2.Primary education 3.Secondary education 4.Diploma holder 5.Degree holder 6.Above degree		
106	What is your occupation?	1. Government employee 2. NGO employee		

		3. Private organization employee 4. Private business 5. Student 6. House wife 7. Others, specify _____		
107	What is your partner's occupation?	1. Government employee 2. NGO employee 3. Private organization employee 4. Private business 5. Student 6. House wife 7. Others, specify _____		
108	How do you classify your family's economic status by comparing your family's income with that of your neighbors?	1. Very poor 2. Poor 3. Average 4. Well to do 5. Rich		
	2.1 Previous Obstetric history			
201	How many times have you ever been pregnant?	_____		
202	How many deliveries did you have?	1. _____ 2. None		
203	How many live births do you have?	1. _____ 2. None		
204	Have you had abortion previously?	1. Yes 2. No		
205	Have you had CS previously?	. Yes 2. No		
206	If yes, for how many time/s	_____		
207	Have you previously had any	1. Yes		

	health problems regarding reproductive health?	2. No		
208	If yes, please specify	_____		
Part 2.2 current obstetric history				
209	Where was your ANC follow up	1. Current facility 2. Referred from other facility		
210	How many ANC visit did you had for the current pregnancy?	_____		
211	Do you think you had all necessary information during you visits regarding pregnancy and delivery	1. Yes 2. No		
212	Did you given choices about mode of deliveries during ANC visits?	1. Yes 2. No		
213	Current Mode of delivery?	1.CS (operation) 2.Intrunmental Delivery 3. Normal delivery (SVD)		If other than 1 go to Q 201
214	What was the indication	1. Maternal condition 2. Fetal condition 3. Elective 4. Others, specify _____		
215	When was it decided to have CS (operative delivery)	1. At 36 weeks 2. At 38weeks 3. At time of labour and delivery 4. Others, specify _____		
216	How do you explain labour pain?	1. 1.very sever 2. Sever		

		3. Mild 4. Normal		
217	Do you believe that your fear of labour pain forced your decision in any way?	1. Yes 2. No		
218	If yes do you think you had enough information from your health provider how labour pain will be managed?	1. Yes 2. No		
219	Did you had family/friend who delivered through normal delivery (vaginal delivery)?	1. Yes 2. No		
220	Did you discussed with your partner about mode of deliveries?	1. Yes 2. No		
221	Did you had ANC follow up with your partner?	1. Yes 2. No		
222	Did your partner support you with your decision regarding mode of delivery?	1. Yes 2. No		
Part 3. Access to the service				
301	How did you get to this hospital?	1. Private car 2. Taxi 3. Bus 4. Ambulance 5. Walking 6. Others, specify_____		
302	Did anyone from your family accompany you to the hospital?	1. Yes 2. No		
303	How much did you pay for the travel? (for you and you accompany, if	_____		

	any)?			
304	How much did you pay in fees to the service?	._____		
305	Did you pay extra fee for medication and supplies other than the one supplied by the facility?	1. Yes 2. No		
306	If yes, how much?	_____		
Part 4. Relation with provider				
401	What type of relationship did you had with your health care provider during ANC visit?	1.Very good 2.Good 3.Medium 4. Bad		
402	Do you think your decision had any pressure by anyone?	. Yes 2. No		
403	If yes please specify	_____		
404	What is the advantage of having operative delivery?	1.Decreased labour pain 2.Doesn't affect sexual health 3.No delivery related complications 4. Others specify------		
405	What is disadvantage of operative delivery?	1. Complications (sepsis, hemorrhage etc…) 2. Neonatal complications 3. Increased cost to the service 4. If others specify------		

Thank you

ASSURANCE OF PRINCIPAL INVESTIGATOR

The undersigned agrees to accept responsibility for the scientific ethical and technical Conduct of the research project and for provision of required progress reports as Per terms and conditions of the Research Publications Office in effect at the time of Grant is forwarded as the result of this application.

Name of the student: YESHI HUSSEIN (BSc)

Date. _____ Signature _____

Approval of the primary Advisor

Name of the primary advisor: Meselech Asegid (MPH, PHD CANDIDATE)

Date. _____ Signature _____