



ST. PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE

DEPARTMENT OF PUBLIC HEALTH

**ECLAMPSIA; MATERNAL AND PERINATAL OUTCOMES OF
PREGNANCIES COMPLICATED BY ECLAMPSIA IN SAINT
PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE**

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GYNECOLOGY AND OBSTETRICS)**

**A STUDENT RESEARCH PROPOSAL TO BE SUBMITTED TO THE
DEPARTMENT OF PUBLIC HEALTH, SPHMMC, IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR
OF MEDICINE**

**FEBRUARY, 2018
ADDIS ABABA, ETHIOPIA**

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Acronyms & Abbreviations

ANC: Antenatal Care

HDP: Hypertensive Disorders of Pregnancy

MMR: Maternal Mortality Ratio

PHC: Primary Health Care

PIH: Pregnancy Induced Hypertension

HDP: Hypertensive Disorders of Pregnancy

WHO: World Health Organization

LBW: Low Birth Weight

IUGR: Intrauterine growth retardation

IUFD/IUD: Intrauterine fetal death

DIC: Disseminated Intravascular Coagulation

SB: Still Birth

END: Early Neonatal Death

PND: Perinatal Death

LB: Life Birth

SMO: Sever Maternal Outcomes

HELLP syndrome: Hemolysis, Elevated Liver enzymes, Low Platelete

HTN: Hypertension

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Abstract

BACKGROUND: Eclampsia refers to the development of grandmal seizures or coma in a woman with gestational hypertension or preeclampsia. Eclampsia occurs antepartum in 38-53%, intrapartum in 15-20%, and postpartum in 11-44% of the cases. The diagnosis of eclampsia is usually clear when women present with seizures, hypertension and proteinuria. (2) Pregnancy complicating eclampsia is a rare, however its life-threatening obstetrics complication and is associated with increased risk of maternal morbidity and mortality. Pregnancy complicating eclampsia is a rare, however its life-threatening obstetrics complication and is associated with increased risk of maternal morbidity and mortality. (14, 15) It is estimated that about 13% of maternal mortality is associated with hypertensive disorders of pregnancy, particularly eclampsia. Maternal mortality is a sensitive indicator of the status of women, their access to health care and the adequacy of the health care system responding to their need. (16)

OBJECTIVE: The objective of this study is to determine maternal and perinatal outcomes of pregnancies complicated by eclampsia in women who have delivered in Saint Paul's Hospital Millennium Medical College in the stated study period.

METHODS: A three years cross-sectional hospital based patient chart review study will be conducted from January 1, 2015 to December 31, 2017. Trained data collectors will extract relevant data from the included patients' charts starting from the onset of signs and symptoms of Eclampsia to the time end date was declared using structured data collecting format. Before starting collecting the data, completeness of patients' charts will be checked and pretest will be done. Analysis of the data will be done using SPSS of latest version and in the analysis process, mean, median, mode and frequency distribution of variables will be worked out in order to describe the variables.

ESTIMATED BUDGET: The study requires 24896 Birr and will be covered by the SPHMMC and principal Investigator.

TIME FRAME: The study will be conducted from January 2018- July 2018.

KEY WORDS: Complication, Eclampsia, maternal, outcome, preeclampsia, prenatal, pregnant mother

Introduction

Background

Eclampsia is defined as the occurrence of convulsions and/or coma with signs of preeclampsia/gestational hypertension during pregnancy or postpartum in pregnant women and not caused by epilepsy or other convulsive disorders. Preeclampsia and eclampsia occur much more commonly in first - time pregnancies and appear typically with minimal or no warning.

Unfortunately, preeclampsia is not preventable, nor is its onset accurately predictable. (1)

Eclampsia occurs antepartum in 38-53%, intrapartum in 15-20%, and postpartum in 11-44% of the cases. The diagnosis of eclampsia is usually clear when women present with seizures, hypertension and proteinuria. In approximately 15% of the cases hypertension and proteinurea are not present. However, when seizures develop in a pregnant woman without a history of seizure disorder, eclampsia should be the diagnosis until proven otherwise. (2)

Its incidence varies widely from 1 in 100 to 1 in 3448 pregnancies. (3-5) In the USA the incidence of eclampsia is 4.3/10,000 deliveries and in the UK it is 4.9/10,000 deliveries. (6) The incidence of eclampsia and its complications have decreased significantly in developed countries, while it's still high in developing countries. (7) This decline has been attributed to improvements in antenatal and intrapartum care. (8)

But still it continues to be significant medical health problem in pregnant mothers of developing countries like Ethiopia, 19% cases of eclampsia(9), 1.37% in Tanzania(10), 43.1% in Nigeria (11), 5.2 cases per 1000 deliveries in Yemen. (12) The incidence of eclampsia in India varies from 0.18 to 4.6%. (13)

Pregnancy complicating eclampsia is a rare, however its life-threatening obstetrics complication and is associated with increased risk of maternal morbidity and mortality. (14, 15) It is estimated that about 13% of maternal mortality is associated with hypertensive disorders of pregnancy, particularly eclampsia. Maternal mortality is a sensitive indicator of the status of women, their access to health care and the adequacy of the health care system responding to their need. (16) Eclampsia and its associated morbidity and mortality are increase in women with maternal age over 35 years, nulliparity, multiple pregnancies, poor socioeconomic conditions and poor education. (17, 18) Also, eclampsia is associated with increased perinatal mortality and morbidity including prematurity, intrauterine growth retardation, and fetal hypoxia. (7) There is

astrong relation between eclampsia and antenatal care; eclampsia was inversely related to antenatal care. Eclampsia is a preventable disease if the patient gets regular effective antenatal care. Increased prenatal care visits during the third trimester facilitate early detection of preeclampsia may prevent most eclampsia preceded by hypertension and proteinuria. (5)

Statement of problem

Perinatal mortality from eclampsia is reported to be 5% - 11.8% in developed countries as compared to a developing nation where eclampsia-related perinatal perinatal mortality varies from 30% to 60% (21). The causes of perinatal death are chronic placental insufficiency, preterm delivery, and placental abruption. (22, 23)

Although all cases of eclampsia are not preventable but we can improve maternal and fetal outcome by good antenatal care, early detection of sign and symptoms of preeclampsia, prompt treatment and timely termination of pregnancy.

The usual markers of developing countries like poor antenatal care, illiteracy, lack of awareness and poverty in developing countries continues to favor these nightmares of pregnant mothers. (25)

In Ethiopia, there are no systematically collected population-based data that allow measuring the incidence of eclampsia, morbidity and mortality rate. Also as an institution we don't have any study done in our Hospital on eclamsia. Thus, the aim of this study is to highlight the Maternal and Perinatal outcomes and factor associated Eclampsia among pregnant women admitted to SPHMMC, Ethiopia in the last one year.

Justifications

Pregnancy induced Hypertension is one of the top causes for maternal morbidity and mortality worldwide, mainly in developing country including Ethiopia. Despite this fact there are few researches are done in our country concerning this common medical problem of pregnancy. Especially in our Hospital, I couldn't find any published research on Eclampsia, which is common cause of morbidity and mortality in mothers with PIH. By its nature maternal and fetal outcomes of Eclampsia can be improved by good antenatal care, early detection of sign and symptoms of preeclampsia, prompt treatment and timely termination of pregnancy. But we don't have baseline statistical data about the incidence, maternal and perinatal outcomes and associated factors of eclampsia. Therefore this research is planned to be dedicated for these purposes in our Hospital, SPHMMC Ethiopia.

Literature review

Worldwide

Eclampsia is a serious complication of hypertensive disorder in pregnancy and is a leading contributor of maternal death. (26) Worldwide, it accounts for about 50,000 maternal deaths a year. (27, 28)

WHO estimates the incidence of preeclampsia to be seven times higher in developing countries (2.8% of live births) than in developed countries. (0.4%) A preeclamptic woman in a developing country is three times more likely to progress to eclampsia than a woman in a developed country. WHO estimates that eclampsia develops in 2.3% of preeclamptic women in the developing world, compared with 0.8% of preeclampsia cases in developed countries. (29) For example in the United States, an incidence of 4.3/10000 was reported while 4.9/10000 was reported in England (30, 31). In an Indian study it is observed that eclampsia contributing 45.360% (40-50%) of all maternal deaths in India (32), whereas eclampsia causes 12% of all global maternal death. (33)

In Bangladesh in a study there were 42 (13.5%) fresh stillbirths (SB), 7 (2.3%) macerated intrauterine deaths (IUD). Stillbirth (fresh still birth and IUD) was 15.8%, i, e.158 per thousand live births and early neonatal death (END) was 41(13.2%), i, e.132 per 1000 live births; so perinatal mortality (SB+END) was found 290/1000 live births, 71.1% babies were discharged healthy. It was also found that most of the patients (75%) were below 25 years of age (range 15-

25 years); 61.30 percent patients were primiparous and PND was 34.23 percent. In the study 29% patients had no Antenatal care (ANC) and only 17.7 percent had regular antenatal check-up. Perinatal death was higher amongst those who had no or irregular ANC. 4.3 percent patients were of gestational age <28 weeks and perinatal death was higher (76.92%) among them. Only 40.7 percent of patients had gestational age >37 weeks and perinatal death was 16.39% and survival rates were 83.61% among them. In that group 29% patients had no Antenatal care (ANC) and only 17.7 percent had regular antenatal check-up. Perinatal death was higher amongst those who had no or irregular ANC. 4.3 percent patients were of gestational age <28 weeks and perinatal death was higher (76.92%) among them. Only 40.7 percent of patients had gestational age >37 weeks and perinatal death was 16.39 percent and survival rates were 83.61 percent among them. Analysis of the study showed that convulsion and delivery interval, degree of proteinuria and diastolic blood pressure had significant relationship with perinatal mortality (34). In an study done by Kamala Verma *et al*; 2016(35) by analyzing sociodemographic characteristics of eclampsia patients, it was observed that 46.15% belong to 21-25 years of age group followed by 40% in <20 years age group.

It was also found that out of 130 patients, only 9 patients had antenatal booking while 66.92% were unbooked and 11.54% were referred from peripheral areas.

It was also indicated that 80.77% patients in their study were primigravida, 10% were second gravida and 9.3% were multigravida. 72.30% patients presented as antepartum eclampsia, 16.15% patients were in the intrapartum period and 11.53% women admitted as postpartum eclampsia. Among 130 patients, 122 patients were discharged while 8 patients died due to various complications of seclampsia.

By observing the fetal outcome, it was seen that there was a total 79 live birth, 30 (23.08%) stillbirth and 19(14.62%) early neonatal death in eclampsia patient, (two patient died before delivery.)

In another study conducted by Giordano et al. 2014 (36) it was mentioned that the total prevalence of eclampsia was 5.2 (per 1000 LB) and a specific MMR of 19.5 (per 100,000 LB). Approximately 70% of all eclamptic women were primiparous. The median age of the cases was 20 years, with the youngest being 13 and the eldest 44. Amongst the maternal characteristics, obstetric background and medical history, the only factors associated with the risk of SMO from

eclampsia were any previous disease and chronic hypertension. Medical histories of any previous disease were present in 27% of the cases and almost doubled the risk of SMO.

Gestational age at delivery reached a median of 36 weeks, fluctuating from 22 to 42 weeks; birth weight implied a median of 2.410 grams, ranging from 520 to 4.900 grams and C-section accounted for 88% of all deliveries.

Perinatal outcomes were also substantially worse in the SMO group: stillbirth (PR 2.34, 95% CI 1.29–4.24), neonatal ICU admission (PR 1.84; 95% CI 1.09–3.10), neonatal death (PR 2.68; 95% CI 1.21–5.91), low 5-min Apgar score (PR 2.87; 95% CI 1.79–4.62) and perinatal death (PR 2.3; 95% CI 1.45–3.65).

In Yemen in the study of *Intisar Ali Mohammed et al* (12) which was conducted from April 2015 to March 2016, 62 women were suffered from eclampsia representing an incidence rate of 5.2 cases per 1000 deliveries. Eclampsia was high among those who were in the twenties (59.6%) than in those who were more than 35 years (19.4%). During the study period, the majority of patients (61.3%) were nullipara, 14 (22.6%) patients had less than 5 children, and only 10 (16.1%) patients were grandmulti.

More than ninety percent of eclamptic patients (90.3%) were illiterate, and most came from rural areas (80.6%) and only 12 (19.4%) cases came from urban areas, or just having primary school education and only 6 cases (9.7%) have more than primary education. Maternal death from eclampsia occurred in 5 cases with a case fatality rate of 8% with a maternal mortality rate from eclampsia of 42 cases per 100,000. There was 21 perinatal death, given perinatal mortality rate 33.9%, of which 12 (19.4%) were early neonatal death and 9 (14.5%) were stillbirth.

African Situation

In Africa generally there are no much published researches on this topic, but the results of the researches show almost similar findings.

In one year (from January, 2007 to December, 2008) cross sectional study of I. O. George *et al* (37). Eighty eight women presented with eclampsia over the study period resulting in an incidence of eclampsia of 16 per 1000 deliveries (1.6%). Unbooked patients who had received inadequate or no antenatal care comprised 90.9% of the women who presented to the hospital (University of Port-Harcourt teaching Hospital (UPtH)) with eclampsia.

The mean gestational age at presentation was 35.04 ± 4.21 weeks with a range of 24 - 43 weeks and 57.1% of them presenting preterm.

Caesarean delivery was the commonest mode of delivery 49 (55.7%) among the subjects with eclampsia.

The total number of births in the series was 90, which included 86 singleton births and 2 sets of twins with a mean birth weight of 2.44 ± 8.18 Kg and a range 0.7 Kg - 4.0 Kg.

Fifty four babies (61.4%) were admitted into the Special Care Baby Unit. The indications for admission were; prematurity (n=23), low birth weight (n=10), severe birth asphyxia (n=12), neonatal jaundice (n=4) and neonatal sepsis (n=5).

There were 37 perinatal deaths, giving a perinatal mortality rate of 411.1 per 1000 live births of babies born to eclamptic mothers. All of perinatal death except two cases occurred among women who had antepartum and intrapartum eclampsia.

The study of *Ndaboine et al* (38), find out that the incidence of eclamsia is 1.37% and of all 76 eclamptic patients who were involved in the research, 73 had attended an antenatal clinic prior to admission. According to the antenatal cards reviewed, only 45.21% had had a documented antenatal BP, and only 24.66% had had a documented antenatal urine dipstick result. Forty-nine patients present with eclampsia before term, while all other presented at term.

Among the study population of 76 patients, here were six maternal deaths, two before delivery and four after delivery, accounting for a case fatality rate due to eclampsia of 7.89%.

There were eight sets of twins and 66 singletons accounting for a total of 82 delivered babies. Forty-eight babies (58.54%) had a low birth weight. There were 17 perinatal deaths (10 stillborns and 7 early neonatal deaths) which yielded a perinatal mortality rate of 207/1000 births.

In Ethiopia

In the works of of Seyom *et al.* (2015) (39) which was conducted from January 1st 2010 - December 30/2013 on HDP and 130 mothers were found to have the diagnosis of pregnancy related hypertensive disorder. Among these 121 (93%) mothers who have a record of HDP were retrieved for further analysis. The minimum and maximum age of the mother were 15 and 39 respectively with a mean and standard deviation of 24.4 (SD ± 5.12). The majority 100 (82.6%) of the mothers were in the age range between 18 to 34 years. As to their residence and background information, 84 (69.8%) were from outside of Mettu town, 62 (51.2%) un-booked

for antenatal care follow up, and 63 (52.1%) were primiparous. Majority 58 (47.9%) of the mother presented to the Hospital with a chief complain of headache. Nearly 87 (71.9%) of the mother had maximum blood pressure record of $BP \geq 160/110$. Sever preeclampsia is the most common hypertensive disorder of pregnancy accounting 35.5%, followed by eclampsia which contributed 19%, mild preeclampsia 14.9%, HELLP syndrome 12.4%, gestational HTN 13.2%, and chronic HTN 4.1% and two patients were superimposed preeclampsia. There were eight mothers with HDP complicated with renal failure (6.6%), nine (7.4%) with postpartum hemorrhage and two with abruptio placenta and there was no maternal death during the study period. It was also found that of all 108 mothers with unfavorable fetal outcomes, the perinatal mortality rate was 120.37 per thousand deliveries and 11 still births yielding the still birthrate of 10.185%. The rate of low and very low birth weight were 24.8% and 3.3% respectively and there were 20 (18.5%) low APGAR score and preterm delivery 34 (28.1%) among 108 deliveries, there were 2 early neonatal death and 13 (10.7%) abortion.

Objectives

General Objectives

The general objective of this research is to assess the maternal and perinatal outcomes among eclamptic patients who are admitted to SPHMMC in the last one year.

Specific objectives

- ✓ To assess the maternal outcomes of eclamptic patients admitted to our hospital in the study period.
- ✓ To determine the common perinatal complications of eclamptic patients in our Hospital
- ✓ To assess the prevalence of eclamsia
- ✓ To disseminate the recommendations to different stakeholders.

Methods and Materials

Study designs

A cross sectional study will be carried out.

Study area

The study will be done in St. Paul's Hospital Millennium Medical College (SPHMMC), Addis Ababa, at the department of Gynecology and Obstetrics.

Based on the 2007 Census conducted by the Central Statistical Agency of Ethiopia (CSA), AA has a total population of 3,384,569 and lies at an altitude of 7,546 feet (2,300 meters). The City has surface area of about 530.14 km²

SPHMMC is the 2nd largest Hospital in Ethiopia, which is found in Addis Ababa, Gullele sub city. It was established at the era of Emperor Hailesilasse II. The Hospital has been giving medical service for more than fifty years by giving due concern for the people with low level of income. Currently it has around 492 beds and an annual average of 200,000 patients and a catchment population of more than 5 million. There are over 1300 clinical and non-clinical staff in over 13 departments, most recently launched its new hemodialysis and transplant unit. As a medical school, the millennium medical college was opened in 2007G.C. to commemorate the new millennium era of Ethiopian calendar. The college has undergraduate programs in medicine of doctor since 2000. The post graduate programs were launched in 2012 with departments of OB-GYN, IESO (Integrated Emergency Surgery and Obstetrics) and general surgery. As an OB-GYN department there are about 46 in-patient beds with one labor ward which has 3 surgical tables for C/S as well as around 8 delivery couches with beds and also an emergency center with 5 laboring and delivery couches and a bed.

Currently the hospital is on the process of construction mega projects to diversify its service provision in the near future.

Source population

All the women who delivered in SPHMMC in the last one year.

Study Population

All the women who was diagnosed to be eclamptic in the study period.

Sample Size

To calculate the sample size a single population proportion formula, $[n = (Z \alpha/2)^2 p (1-p) / w^2]$, was employed. Proportion of satisfaction (P) value of 19% was taken from the finding of a study done in Mettu karl Referral hospital, Mettu, Ethiopia on Maternal and fetal outcome of pregnancy related hypertension. In addition, 95% confidence level with margin of error 5% ($w=0.05$) were used.

Hence, the sample size was calculated as $n_0 = (Z\alpha/2)^2 p (1-p) / w^2 = (1.96)^2(0.19) (0.81)/ (0.05)^2 = 236$.

But since I'm planning to involve all the patients who are diagnosed to have eclampsia in the study time and whose charts' is complete for the data in need, it's not necessary to have sample size determination. I will use a non-probability sampling method and quantitative data will be collected.

Sampling procedures

Since all the study populations will be expected to be small I'm planning to involve all the patients who are diagnosed to be eclamptic in the study period. Patients will be selected purposively based on the case load (case of Eclampsia) and the presence of fully registered data.

Inclusion and exclusion criteria

Inclusion criteria

Patients with a tonic-clonic convulsion in the second half of pregnancy diagnosed to have eclampsia or within ten days after delivery.

Exclusion criteria

Other causes of tonic-clonic convulsion with pregnancy like epilepsy, meningitis, cerebrovascular accident.

Study Variables

Independent Variables:

- ✓ Socio demographic variables: Age, Sex, Educational Level, Family income, Ethnicity,

- ✓ Reproductive and medical history; parity, gravidity, previous personal or family history of hypertension or PIH, diabetis mellitus, blood pressure, gestational age, antenatal care,
- ✓ Religion, Family size, Parents Marital Status and Habits (Alcohol, Drugs, Khat and Cigarette).

Dependent variables

Maternal outcome, severity symptoms of HDP, proteinuria, hemoglobin, platelet count, creatinine, serum oxaloacetic transaminase (SGOT) level, type of anticonvulsant or antihypertensive given, labor onset, mode of delivery, fetal birth weight, anemia

Standard Definition/Operational Definition

- **Preeclampsia**; The finding of raised blood pressure or severe symptoms of hypertension with significant proteinuria after 20 weeks of gestation in previously normotensive women.
- **Eclampsia**; the occurrence of convulsion or coma in preeclamptic mother/ in a mother with gestational hypertension, not attributable to any other causes.
- **Chronic hypertension**; Will be diagnosed when the women were found to have hypertension before the occurrence of pregnancy or before 20 weeks of gestation.
- **Superimposed preeclampsia**; a new onset or worsening of proteinuria and/or worsening of hypertension in women with a known chronic hypertension.
- **Gestational hypertension**; the development of an elevated blood pressure during the second half of pregnancy without proteinuria and without severity symptoms.

Pregnant or postpartum women with a systolic blood pressure (BP) < 140 mmHg and diastolic BP < 90 mmHg will be categorized as normotensive. A systolic BP $\geq$ 140 mmHg and diastolic BP $\geq$ 90 mmHg measured twice six hours apart defined mild to moderate hypertension. A single record of systolic BP $\geq$ 160 mmHg and diastolic BP $\geq$ 110 mmHg was enough to define severe hypertension.

- **Gestational age**: The duration of gestation. It is measured from the first day of the last menstrual period and is expressed in completed weeks.
- **Term period**: The period from 37 completed weeks up to the end of 42nd week.
- **Preterm period**: refers to less than 37 completed weeks of gestation.
- **Preterm Delivery**: Birth of baby before 37 complete weeks of gestation.
- **Post term period**: This period refers to the pregnancy length of more than 42 completed weeks of gestation.

- **Birth Weight:** The weight of a new born infant obtained preferably within one hour of birth.
- **Low birth weight:** birth weight of less than 2500 grams.
- **Live birth:** Live birth has occurred when the new born infant breathes or shows any sign of life such as, heartbeat, pulsation in the umbilical cord or movements of voluntary muscles.
- **Still birth:** The birth of a dead fetus at 22 weeks or more and birth weight equal or more than 500 gms.
- **Still birth rate:** The number of still born infants per 1000 total births.
- **Neonatal Death:** The death of a baby that occur at less than 28 days of age with birth weight of 500 gms and more.
- **Early neonatal death:** The death of a live born during the first 7 days of life.
- **Late neonatal death:** The death of a live born infant after 7 completed days, but before 28 completed days after birth.
- **SMO (Severe maternal outcome).** All cases of maternal death or maternal near miss.

Data Collection Procedures

Considering financial support that I will receive for the research and time resource I will have, at least 3 data collectors who will be recruited and trained. To access the detailed data in the patient chart, the delivery log book will be used as an entry point to identify the Eclamptic patients by their card number.

A structured data collecting format will be prepared and used to abstract relevant data from the included patients' charts starting from the onset of signs and symptoms of PIH/Eclamsia to the time end date was declared.

Data Quality and clearance

In ensuring the quality of data, all the data for each patients chart will be checked for completeness, accuracy, clarity and consistency by the principal investigator and the supervisor, immediately after data is collected. Also pretest will be done for the assessment of data collecting tool, applicability of the research, to asses and support the skills of data collectors and to find out the limitations of the methodology, if there is any.

Data entry and Analysis

After the data collection and checked for completeness, data will be coded, entered, and analyzed using computer data analysis software program (SPSS of latest version).

In the analysis process, mid, median, mode and frequency distribution of variables will be worked out in order to describe them. To ascertain the association between dependent and independent variables, odds ratio with 95% confidence interval will be calculated. In an attempt to identify the relative effects of explanatory variable on the outcome variable, Logistic regression will be applied.

Ethical Considerations

The ethical approval and clearance will be obtained from Department of Public Health, SPHMMC. At necessary levels, officials will be contacted and permission will be secured.

Dissemination of Results

The findings of this study will be distributed to different organizations and individuals to whom the results and recommendations concern and those who have helped the project to be carried out; the findings will be presented in different seminars, meetings and workshops and may be published in scientific journals.

Work plan

The various components of this research proposal and the time it will take are summarized in the following tables.

Table 1: Time schedule

S.No	Activities	2017 G.C.	2018 G.C.						
		Nov	Jan	Feb	Mar	Apr	May	June	July
1	Research title selection meeting								
2	Overview of proposal development Meetings								
3	First draft proposal meeting								
4	Final draft proposal meeting								
5	Approval of proposal and ethical clearance								
6	Overview of data collection and analysis meeting								
7	Data collection								
8	Descriptive result meeting								
9	Analytic result meeting								
10	First draft report meeting								
11	Final draft report meeting								
12	Final thesis report submission								
13	Research report evaluation by the examiners								
14	Thesis defense								

15	Final report/ thesis submission after defense								
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Budget proposal

Table 2: Personnel Costs break down:-

Personnel	Activity	Quality	No	Working days	Per-day	Total
Data collectors	Training+ Data collection	12 th grade complete	3	4	300	3600
Supervisor	Coordinating		1	10	500	5000
Principal investigator	While organization		1	30	300	9000
Data clerk	Data entry & clearance	IT qualified	1	contract	1000	1000
Total						18600

Table 3: Chart collection and communication cost:-

Description	Freq.	Unit price	Total
Chart collecting and facilitating the process	≥172	2	344
Communication (fax, tel. e-mail)	-----	-----	400
Total	-----	-----	744

Table 4 : Cost of Supplies (stationary)

Description	Unit	Quantity	Unit price in Birr	Total in Birr
Duplicating paper	Rim	13	100	1300

Duplicating ink	Tube	2	60	120
CD/R	Single	5	30	150
Stencils	Each	1	90	90
Pens	Each	12	5	60
Pencils	Each	13	1	13
Photo copy	Each	--	154	154
Notebook	Each	12	10	120
Calculator	Each	1	80	80
Marker	Set	1	50	50
Total	----	-----	-----	2305

Table 5: Project cost summary:-

Number	Descriptive cost	Total
1	Personnel	18600
2	Supplies	2305
3	Chart collecting facilitating the process and communication	744
4	Total	21649
5	Contingency (15%)	3247
6	Grand total	24896

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ANNEXES

COMPILATION SHEET: IDENTIFICATION NUMBER AND INITIALS:

REFERRAL: 1. Yes, 2. No, If Yes, from.....

Questionnaires

A. SOCIO DEMOGRAPHIC DATA

- 1) Age -----
- 2) Address: 1. Addis Ababa, 2. Out of Addis Ababa
- 3) Education level: 1. Illiterate, 2. Elementary, 3. Secondary, 4. College
- 4) Marital status: 1. Married, 2. unmarried, 3. Divorced/ widowed
- 5) Occupation: 1. Employed, 2. Unemployed

B. OBSTETRIC HISTORY

- 6) Current pregnancy history
 1. Gravidity-----
 2. Parity -----
 3. Abortion -----
- 7) Gestational age
 1. Pre term
 2. Term
 3. Post term
- 8) Attended antenatal follow up: 1. Yes, 2. No
- 9) Number of fetus: 1. Single, 2. Twin (multiple)
- 10) Prior history of PIH: 1. Yes, 2. No
- 11) Drugs given during current pregnancy
 - Methyldopa: 1. Yes, 2. No
 - Nifedipine: 1. Yes, 2. No
 - Hydrallazine: 1. Yes, 2. No
 - Magnesium sulphate: 1. Yes, 2. No
 - Diazepam: 1. Yes, 2. No
 - Other (Specify) -----

C. PAST MEDICAL HISTORY

12) Past medical history of the pregnant mother

Chronic hypertension: 1. Yes, 2. No

Pregnancy induced hypertension: 1. Yes, 2. No

Diabetes mellitus: 1. Yes, 2. No

Chronic renal disease: 1. Yes, 2. No

Heart disease class 1 (No limitation of activity): 1. Yes, 2. No

Heart disease, Class 2-4(any limitation in activity): 1. Yes, 2. No

Hematological disorder (Chronic anemia): 1. Yes 2. No

Hepatitis: 1. Yes, 2. No

Seizure disorder: 1. Yes, 2. No

HIV/AIDS positive: 1. Yes, 2. No

Others, specify

13) Family history of hypertension: 1. Yes, 2. No

14) Family history of preeclampsia/PIH: 1. Yes, 2. No

D. CLINICAL FEATURES ON ADMISSION

15) Chief complain (other than pregnancy/labour)

Headache: 1. Yes, 2. No

Dizziness: 1. Yes, 2. No

Epigastric pain: 1. Yes, 2. No

Visual disturbance: 1. Yes, 2. No

Nausea and or Vomiting: 1. Yes, 2. No

Convulsions: 1. Yes, 2. No

16) Maximum Blood pressure -----

?17) Oedema: 1. Yes, 2. No

?18) Weight (Kilogram) -----

E. INVESTIGATIONS

19) Investigation done

Blood group and Rh: 1. Yes 2. No

Hematocrit: 1. highest level, 2. lowest level

Liver function: 1. Normal, 2. Deranged

Renal function: Urea -----, Creatinine-----

Dipstick urine protein = 1+, 2+, 3+

G. DELIVERY

20) Onset of labour:

1. Spontaneous
2. Induction
3. Elective C/S

21) If not spontaneous, Indications

1. Intrauterine fetal death
2. Abruption placenta
3. Fetal distress
4. Eclampsia itself
5. Others, specify

22) Mode of delivery

1. Spontaneous Vaginal delivery
2. Instrumental
3. Caesarean section

23) If caesarean section what was the indication?

1. Fetal distress
2. Abruption placenta
3. Previous C/S scar
4. Eclampsia
5. Others, Specify

24) Number of days of hospitalization-----

H. MATERNAL COMPLICATIONS

25) Is there any maternal complication? 1. Yes, 2. No

26) If yes what? -----

1. Abruption placenta
2. HELLP syndrome:
3. DIC (Disseminated intravascular coagulation)
4. Acute renal failure

- 5. Cardiac failure
- 6. Post-partum hemorrhage
- 7. Stroke
- 8. Pulmonary Edema
- 9. Maternal death
- 10. Others? Specify

I. PERINATAL OUTCOME:

- 1. Boy, 2. Girl
- 27) Outcome of delivery: 1. Still birth, 2. Live birth
- 28) If live births Apgar score: 1. at 1 minute----- 2. At 5 minutes -----
- 29) Birth weight: 1. <1000, 2. 1000-1500, 3. 1500-2500, 4. 2500-4000 5. >4000
- 30) Neonatal death: 1. Yes, 2. No
- If Yes, How old? -----