Preterm Birth and Associated Factors among Women Who Gave Birth in Jigjiga Town Governmental Hospitals, Jigjiga, Eastern Ethiopia

: A Hospital based cross-sectional study

MSc THESIS

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September, 2019

HARAMAYAUNIVERSITY, HARAR

Preterm Birth and Associated Factors among Women Who Gave Birth in Jigjiga Town Governmental Hospitals, Jigjiga, Eastern Ethiopia

: A Hospital based cross-sectional study

A Thesis Submitted to the School of Nursing and Midwifery,

School of Graduate Studies

HARAMAYA UNIVERSITY

In a Partial Fulfillment of the Requirements for the Degree of

MASTER IN MATERNITY AND NEONATAL NURSING

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August, 2019

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I hereby certify that I have read and evaluated this Thesis entitled "Magnitude of Preterm Birth and Associated Factors among Women Who Gave Birth in Jigjiga Town Governmental Hospitals, Jigjiga, Eastern Ethiopia" prepared under my guidance by Ibrahim Ismail.I recommend that it be submitted as fulfilling the thesis requirement

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As a member of the Board of Examiners of the MSc Thesis Open Defense Examination, I certify that I have read and evaluated the Thesis prepared by **Ibrahim Ismail** and examined the candidate. I recommend that the thesis be accepted as fulfilling the Thesis requirements for the degree of Master in Maternity and Neonatal Nursing.

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Final Approval and Acceptance of the Thesis is contingent up on the Submission of its final copy to the Council of Graduate Studies (CGS) through the candidate's department or school graduate committee (DGC) or (SGC).

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BIOGRAPHICAL SKETCH

The author was born on January 4, 1992 in Babile Town, East Hararghe of Oromia Regional State, Ethiopia. He attended his primary and secondary school at Babile Primary and Karl Heinth Bohm Secondary School respectively. Then he joined Goba College of Health Science in 2006/7 and graduated from Goba College of Health Science in Diploma Clinical Nurse in 2009. Immediately after graduation, he was employed at Babile Town Health Center and assigned in <5OPD. Thereby, he joined Jigjiga University after two year of work experience where he studied Midwifery profession and graduated from Jigjiga University in july 20,2015 in BSc degree in Midwifery. In October 18, 2015 he employed in Jigjiga University as instructor. Thereby, after one-year experience he positioned as Assistant Lecturer. In October 28,2018he joined Haramaya University Postgraduate Studies being sponsored by Jigjiga University to pursue his graduate study in Masters of Science in Maternity and Neonatal Nursing for which this is partial fulfillment.

ACKNOWLEGMENTS

First, I would like to express my gratefulness to Haramaya University, College of Health and Medical Science, School of Graduate Studies. My special thanks go to my advisors Dr Gudina Egata(PhD) and Professor Myrla Obejero Mabalhin for their valuable time and comments through all the process of this research development. Next I express my thanks to Somali Regional State Health Office, participants, Data collectors and supervisor. Lastly, I want to express thanks to Librarians and internet room workers for providing me the necessary materials needed for this thesis.

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ACRONOMYS/ABBREVIATIONS

AOR	Adjusted Odds Ratio
APH	Antepartum Hemorrhage
CI	Confidence Interval
C/S	Caesarean Section
EDHS	Ethiopia Demographic Health Survey
FMOH	Federal Ministry of Health
GA	Gestational Age
GDM	Gestational Diabetes Mellitus
HIV	Human Immunodeficiency Virus
IUGR	Intra Uterine Growth Restriction
JJUShHRH	Jigjiga University Sheik Hasan Referral Hospital
LNMP	Last Normal Menstrual Period
MDG	Millennium Development Goal
NICU	Neonatal Intensive Care Unit
OR	Odds Ratio
PIH	Pregnancy Induced Hypertension
PMTCT	Prevention of Mother to Child Transmission of HIV
PROM	Premature Rupture of Membrane
SGA	Small for Gestational Age
SPSS	Statistical Package for Social Science
SVD	Spontaneous Vaginal Delivery
UTI	Urinary Tract Infection
WHO	World Health Organization

ABSTRACT

Background: Globally, 15 million newborns are delivered being prematurely every year and >1 in 10 are premature, affecting families worldwide. Over 1 million babies die each year due to complications of premature delivery and survivors face a lifetime of disability, including learning disabilities, visual and hearing problems. Preterm birth is the leading cause of neonatal mortality mostly in the first 4 weeks of life and currently the second leading cause of death in children under the age of 5 after pneumonia. However, limited data about the magnitude of premature birth and associated factors in low income countries like Ethiopia. Up to the knowledge of principal investigator no study is done in Jigjiga Town Governmental Hospitals.

Objectives: To assess the magnitude of preterm birth and associated factors among women who gave birth in Jigjiga Town Governmental Hospitals.

Methods: Institutional based cross-sectional study design was used among 600 women who gave birth in Jigjiga Town Governmental Hospitals, March 1 to April 1, 2019.Study participants were selected using Sequential sampling technique. Data were collected using a pre-tested structured questionnaire Collected data were checked and entered into Epi data version 3.1. and exported to Statistical Package for Social Science window version 20 for analysis. Descriptive statistics was done by computing proportions and frequencies. Bivariable logistic regression analyses were done to see the association between the outcome variable and each independent variable. All variables with P<0.25 in the bivariable analyses were included in the final model of multivariable in order to control for all possible confounders and to identify the predictors of the outcome variable. Odds ratio along with 95% Confidence Interval were estimated to measure the strength of the association. Level of statistical significance was declared at P-value < 0.05.

Result: The magnitude of preterm birth was 12.3%,95%CI (9.7%,14.9%). History of abortion [AOR=5.01;95%CI:(1.86,13.45)], Hypertension disorder of pregnancy [AOR=3.32;95%CI:(1.08,10.20)], sex [AOR=8.32;95%CI:(4.56,17.05)], low birth weight [AOR=3.80;95%CI:(1.55,9.84)] and residence [AOR=4.48;95%CI:(1.39,14.44)] were statistical significantly associated with preterm birth.

Conclusion: In this study magnitude of preterm birth in Jigjiga Town Governmental Hospitals is low. History of abortion, hypertension disorder of pregnancy, sex, low birth weight and residence were significantly associated with preterm birth.

Recommendation: Enhance prompt recognition of obstetric complications particularly hypertension disorder of pregnancy. To reduce risks of recurrent abortion health education should be emphasized to women of reproductive age and family planning should be promoted. Screening for gestational development during the antenatal period should be done regularly to reduce low birth weight.

Key Words: Preterm Birth, Associated Factors, Magnitude, Hospital

1. INTRODUCTION

1.1. Background

Premature deliveries are those that occur at < 37 weeks of gestational age; however, the low-gestational age cutoff, or that used to distinguish preterm birth from spontaneous abortion, varies by areas. Gestational age at birth is now established as a reference standard regardless of the consequence and prognosis of the premature neonate, together with birth weight. Premature deliveries can be further categorized as late premature birth (34 to 36 completed weeks gestation), moderately premature birth (32 to 33 weeks), very premature birth (28 to 31 weeks), and extremely premature birth (<28 weeks) (Hakem *et al.*, 2015).

Worldwide, an estimated 13 million newborns are born < 37 completed weeks of gestation yearly. Rates are generally highest in underdeveloped and developing countries and rising in some developing and developed countries. The highest rates of premature delivery occurred in Africa and North America. In Ethiopia about 12% of under- five deaths is attributed to preterm birth(Bekele *et al.*, 2015).The premature delivery rate has increased in most developed countries, despite advancing knowledge of causes and mechanisms related to premature labor, and the introduction of many public health and medical interventions proposed to decrease premature delivery (Hakem et al., 2015).

About 5% of premature births occur at a gestation <28 weeks, 15% at 28–31 weeks, 20% at 32–33 weeks and 60–70% at 34–36 weeks(WAGURA, 2014). Preterm delivery is a syndrome related with neonatal morbidity, which has bad chronic health outcome and complications during the lives of preterm neonates results high neonatal mortality rates(Ahumada-Barrios *et al.*, 2016).

1.2. Statement of the Problem

Globally, 15 million newborns are premature delivery every year and >1 in 10 newborns are premature, affecting families worldwide. Over 1 million babies die each year due to complications of premature delivery and survivors face a lifetime of disability, including learning disabilities, visual and hearing problems. premature delivery rates are rising in almost all countries with reliable data (WHO, 2018).

Preterm birth is the leading cause of neonatal mortality mostly in the first 4 weeks of life and currently the second leading cause of death in children under the age of 5 after pneumonia(WHO, 2012).Over 60% of premature delivery occur in Africa and South Asia and top ten countries with the highest numbers which include Brazil, the United States, India and Nigeria, demonstrating that premature delivery is truly a global problem. Of the 11 countries with premature delivery rates of >15%, all but two are in sub-Saharan Africa. In the lowest income countries, on average, 12% of newborns are premature delivery compared with 9% in higher-income countries. Within countries, low income families are at higher risk (Blencowe *et al.*, 2012).

The estimated national premature delivery rates for 184 countries in the year 2014 suggesting globally a total of 14·9 million premature delivery (uncertainty range 12·3–18·1 million) more than one in ten of all newborns. Most premature delivery (84%, 12·5 million) occur >32 completed weeks of gestation and most of these babies would survive with supportive care and without neonatal intensive care. Yet, a big survival and equity gap remains between the highest income and lowest income countries. Currently, >90% of newborn <28 weeks of gestation survive in richest countries, but not in poorest settings and this could alter the trajectory of many countries towards for child survival (WHO, 2018). Currently, studies show that even newborns at 34–37 weeks have an increased risk of immediate complications,39–41 neonatal and infant death, cerebral palsy, and worse neurodevelopmental and school performance outcomes when compared with those born at term (Bekele et al., 2015). Strategies for maternal mortality reduction to meet the sustainable development goal 5, such as family planning and obstetric care, can also improve pregnancy outcomes including premature delivery (Blencowe et al., 2012).

Global progress in child survival and health to 2015 and beyond cannot be achieved without determining premature delivery (WHO, 2018). The birth of a premature neonate results in significant health sequel to the neonate and emotional and economic costs for families and communities (WHO, 2012). Therefore, better understanding of the prevalence and risk factors will enhance the development of preventive solutions(WHO, 2012).In Ethiopia about 12% of under-five deaths is attributed to preterm birth. The main risk factors of premature births are low monthly income, absent or inadequate antenatal care, lack of contraceptive use, caesarean delivery and clinical complications during pregnancy(Bekele et al., 2015).

Ethiopia is in the top ten of countries with the highest number of neonatal mortality in the world and showed slow progress in reducing neonatal mortality rate (NMR). Ethiopian Demographic and Health Survey of 2019 indicates an NMR of 30/1000 live births, which is almost similar to the rate in 2016 (EDHS, 2019). Because of this, it is important to assess risk factors of neonatal mortality to guide health planning related to it (Belachew, 2015).

Premature delivery occurrence is multifactorial including early induction of labor or cesarean delivery whether for medical or non-medical reasons and most premature delivery happen spontaneously and commonly caused by multiple pregnancies, infections, chronic conditions, such as diabetes mellitus and pregnancy induced hypertension and genetic factors; however, often no etiology is identified (WHO, 2012).Modeling causes of neonatal death estimates show that causes of newborn death in low mortality and high mortality countries are complications of premature delivery ("prematurity"), intrapartum-related complications ("intrapartum", which includes birth asphyxia and birth trauma), congenital disorders, pneumonia, sepsis and other severe injuries respectively(WHO, 2018). Multiple risk factors can contribute to premature birth including low levels of maternal hemoglobin, pregnancy weight gain , biological and genetic factors, and some other maternal or fetal medical conditions some of remain unknown(Tehranian *et al.*, 2016). The main risk factors of premature births were low monthly income, absent or inadequate antenatal care, lack of contraceptive use, caesarean delivery and clinical complications during pregnancy(Bekele et al., 2015).

There are a lot of efforts made at national level to skilled care provision and improving supplies and saving commodities and equipment for maternal and newborn to halt health consequences related to prematurity that heavily load on families and health systems(Passini *et al.*, 2010).The only skilled care providers, improved supplies, commodities and equipment is not sufficient to improve the current status of premature delivery, however to facilitate improve situation further exploration will be done at all levels including health facilities, community and household levels (WHO, 2018).

However, limited data about the magnitude of premature birth and associated factors in low income countries like Ethiopia including the study area. Therefore, this study is aimed at assessing the magnitude of preterm birth and associated factors among women who will give birth in Jigjiga Town Governmental Hospitals, Jigjiga, Eastern Ethiopia.

1.3. Significance of the Study

Maternal and community behavior that affects preterm birth status of the women was explored that could be possible to tackle the current problems. Based on the study findings and the available knowledge, appropriate solution and information were suggested, also recommendation regarding how to solve the current problem and if further studies seems to be needed were suggested.

The results of this study may be an input for Program Directors, Regional Health Bureau, Medical Directors and Maternity service providers to plan appropriate interventions to reduce premature delivery, newborn morbidity and mortality and <5 children mortality rate. It may also assist to fill the research gaps in the study area/setting by providing baseline information for other areas of the country researchers.

1.4. Objectives of the Study

1.4.1. General Objective

- To assess the magnitude of preterm birth and associated factors among women who gave birth in Jigjiga Town Governmental Hospitals from March 1 to April 1, 2019.

1.4.2. Specific Objectives

- To determine the magnitude of preterm birth among women who gave birth in Jigjiga Town Governmental Hospitals.
- To identify factors associated with preterm birth among women who gave birth in Jigjiga Town Governmental Hospitals.

2. LITERATURE REVIEW

2.1. Magnitude of Preterm Birth

The estimated global preterm birth rate is 10.6%. Of this 81.1% occurred in Asia and sub-Saharan Africa. Regional PTB rates for 2014 ranged from 13.4% in North Africa to 8.7% in Europe(WHO, 2014). According to a case control study that was done from Nov 2010 to July 2011 in three maternal hospitals found in Ardabil, Iran the prevalence of premature birth was 5.1% (Alijahan *et al.*, 2014).A cross sectional study done in Germany showed that the prevalence of premature birth was 12.5% (Weichert *et al.*, 2015).

A cross-sectional study conducted in 13,281 deliveries to assess the prevalence of premature birth and associated factors in Tehran, Iran showed that overall prevalence rate of premature birth was 1.52% (Tehranian et al., 2016).Another case control study done in Latin America in the National Hospital Sergio E. Bernales, indicated that the prevalence of preterm birth in the population was 7.4% (Ahumada-Barrios et al., 2016).

A prospective study done in a tertiary medical center in Southeast Nigeria showed that the prevalence rate was 16.9% (Iyoke *et al.*, 2018).According to the research conducted in National Ribat University Teaching Hospital in North Sudan the prevalence of premature birth in the National Ribat University Teaching Hospital was 4.7% (Hakem et al., 2015).A hospital based cross sectional study done in Maternity unit, Kenyatta National Hospital, Nairobi indicated that a prevalence of prematurity 18.3% (WAGURA, 2014).

According to a study done in Jimma University Specialized Teaching and Referral Hospital the prevalence rate of premature delivery was 25.9%(Bekele *et al.*, 2017).A facility based cross-sectional study which was conducted among mothers who gave birth in Gondar town health institutions indicated that the prevalence of premature delivery was found to be 4.4%. (Kahsay, 2016a).Institutional based cross sectional study that conducted at Debremarkos Town health institution indicated that the prevalence of premature delivery was found to be 11.6%(Bekele et al., 2015).

2.2. Factors Associated with Preterm Birth

2.2.1. Socio-demographic Related Factors

A cross sectional study done in Germany showed that women from town had higher risk of premature birth than women from rural area and mothers with lower social status had higher risk of premature birth than from middle and higher social status (Weichert et al., 2015). A case control study conducted in the Department of Obstetrics and Gynecology teaching hospital in Jalandhar,

Punjab, India shows that maternal age more than 34 years was significantly higher risk of a premature birth(Mahajan and Magon, 2017).A cross-sectional study conducted in 13,281 deliveries to assess the prevalence of premature birth and associated factors in Tehran, Iran showed that 13.5% and 2% of the women in the two groups who were aged above 35 years of premature birth is significantly higher in women aged greater than 35 years (Tehranian et al., 2016).

According to the research in National Ribat University Teaching Hospital, North Sudan as to the age of the pregnant women who gave to preterm delivery, 54% of those who gave birth to preterm infants were aged between 26 – 35. Although the mean age of marriage in the Sudan is relatively less than the rest of the world, 27% where 18 - 25 years old and 19% where between 36 and 45 years. There is enough evidence to indicate that older woman age is an independent and direct risk factor for premature delivery and SGA delivery (Hakem et al., 2015).

According to a study done in Jimma University Specialized Teaching and Referral Hospital significant associations were found in those respondents who live in the rural area and will have two-time premature delivery as compared to those live in urban place of residency. Mothers who had Diploma and Degree educational background were 83% less likely to have premature delivery as compared to the illiterates((Bekele et al., 2017).

According to an Institutional based cross sectional study conducted in Debremarkos Town health institution significant association was found between income and premature delivery. Women who have family income<600 birr/month are 2.6 times more likely to have premature delivery than women whose income was $\geq$ 600 birr/month(Bekele et al., 2015) .

2.2.2. Maternal Related Factors

A cohort study done in a rural Bangladeshi shows that women who delivered twins or triplets were 1.6times more likely to have premature births compared to women who delivered a singleton newborn. Also, the estimated risk of premature birth was 8% higher among women who had history of stillbirth(Shah *et al.*, 2014).A cross sectional study done in Germany showed that women who had multiple pregnancy were 13 times risk more likely to have premature births than women who had singleton and nulliparous women were 1.5 folds risk more likely to have preterm birth than multiparous (Weichert et al., 2015).

A case control study conducted in the Department of Obstetrics and Gynecology of a teaching hospital in Jalandhar, Punjab, India indicates that women who had no ANC were more likely to have risks of premature birth compared to those who had ANC. Mothers with history of abortion and history of previous premature birth were more likely to have premature birth (Mahajan and Magon, 2017). According to a case control study which was done in three maternal hospitals of Ardabil, Iran chronic hypertension and pregnancy induced hypertension increased the risk of premature delivery by 7.3 and 3.6 times, respectively. Women who suffered hyperemesis gravidarum had 1.3 folds more likely to have premature birth than those who did not experience hyperemesis gravidarum (Alijahan et al., 2014).

A cross-sectional study conducted among 13,281 births to assess the prevalence of premature delivery and associated factors in Tehran, Iran, 2013 showed that the risk of premature delivery was greater in mothers with previous premature delivery. Abortion, frequency of vaginal bleeding in premature deliveries and frequency of premature delivery in women with premature rupture of membrane were significantly greater , respectively (Tehranian et al., 2016).

According to the research conducted in National Ribat University Teaching Hospital North Sudan among premature deliveries delivered vaginally, 89% of them were spontaneous preterm delivery while the rest were induced preterm delivery. Seventy-six percent were products of Caesarean section from which 50% were planned C/S and equal number was emergency C/S. The highest common risk which was found as an indication of premature C/S was pregnancy induced hypertension with percentage of 38% of all C/S done to preterm delivery, this shows that hypertensive disorders in pregnancy is one of the highest important risk factors for preterm delivery and it is expected that if enough intervention is found there will be a dramatic decrease in the incidence of preterm delivery all around the world. (Hakem et al., 2015).Also, 35% of all women who had premature birth have $\geq$one complications that occurred during pregnancy and most of were Gestational Diabetes Mellitus (31%) and pregnancy induced hypertension (31%) which lead to delivery of newborn before term. Again this proves that hypertensive disorders with Gestational Diabetes Mellitus form important risk factors for preterm delivery. (Hakem et al., 2015).

A hospital based cross sectional study which was conducted in Maternity Unit, Kenyatta National Hospital, Nairobi indicates that mothers with a parity of $\geq$4 were nearly five times more likely to

deliver premature infants compared to those whose parity was < 4. About 35% of women who had birth of preterm had previous premature birth compared to 16% of those who had birth at term and this was significant among women who had no ANC and was one and a half times more likely to have premature birth. Mothers who gave birth by caesarian section were nearly two times more likely to have premature delivery than those who gave birth through vaginally (WAGURA, 2014). Twin pregnancy conferred almost four times increase the risk of premature delivery. Women with pregnancy- induced hypertension and those with antepartum hemorrhage had five times and three times increased risk of premature delivery, respectively. Risk of premature delivery increased eight times with pregnancy induced hypertension, five times with women who had prolonged premature rupture of membrane and four times with antepartum hemorrhage after controlling for confounders. (WAGURA, 2014).

A study done in Jimma University Specialized Teaching and Referral Hospital showed that mothers who had no substance intake during pregnancy were 47% less likely to have premature delivery as compared to women who had previous history of substance intake during pregnancy. Respondents who were multigravida were two folds more likely to have premature delivery as compared to primi-gravida.(Bekele et al., 2017).Mothers who had no history of abortion were 71.8% less likely to have premature delivery as compared to women who had history of abortion. Women who had history of premature labor, had premature rupture of membrane 74.5%, had history of hemorrhage during pregnancy 78.4% and previous urinary tract infection during pregnancy were 56% less likely to have premature delivery as compared to those who had no history of stillbirth, history of premature labor, history of premature rupture of membrane, history of hemorrhage during pregnancy and history of urinary tract infection during pregnancy respectively are significantly associated with premature delivery. Also women with chronic hypertension during pregnancy is a risk factor for premature delivery.(Bekele et al., 2017).

According to the facility based cross-sectional study conducted in Gondar town health institutions mothers who had PIH were fivefold more likely to have premature birth than those without PIH. HIV positive status were significantly related with premature delivery, women who were HIV positive has three times risks to have premature delivery (Kahsay, 2016a). Another Institutional based cross sectional study done at Debremarkos Town health institution indicate that women who

had Antenatal care follow upwere more than 75% reduced risk to have premature delivery than women who hadn't Antenatal follow up (Bekele et al., 2015).

2.2.3. Fetal Related Factors

A cohort study done in a rural Bangladeshi shows a female newborn was 9.0% less likely to be premature than a male newborn (Shah et al., 2014). A study done in Jimma University Specialized Teaching and Referral Hospital among premature births who were delivered with congenital abnormalities was 62% ; history of twins birth including the current 56% ; history of congenital abnormality 67% ; history of low birth weight including the current 68% ; history of premature delivery including the current 83% ; and sex of neonate was 28% male and 24% female (Bekele et al., 2017).Respondents who had not current neonate congenital abnormality 80.5%, who had no previous twin birth including the current 76.1% less likely to have premature delivery as compared to those who had congenital abnormality newborn history with current and history of twin delivery respectively. Mothers without history of congenital abnormality newborn98.9%, No history of premature delivery 99.9% and no history of low birth weight delivery 99.9% significantly were less likely to have premature birth (Bekele et al., 2017).

2.3. Conceptual Framework

This conceptual framework is developed based on the above literature review of this study. It has been divided into three domains which are Distal, Intermediate and Proximal factors. Distal factors are the sociodemographic variables which shows the characteristics of the client and expected to have less impact on the dependent variable. The intermediate factors are fetal related variables and expected to have better impact on dependent variable than distal factors. Finally, the proximal factors which are expected to have significant impact on dependent variable which are maternal related variables(Figure:1).

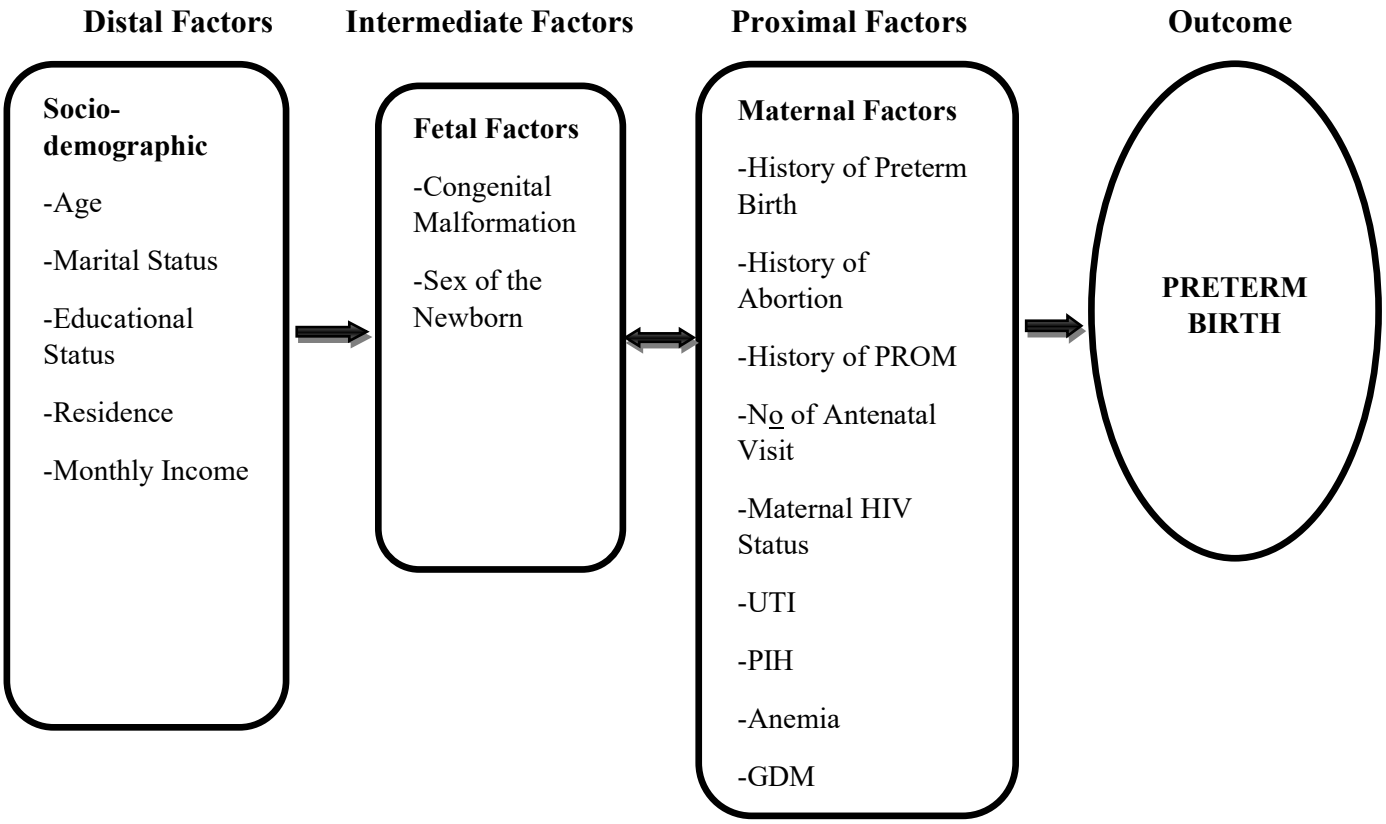

Figure 1: Conceptual framework for the study

Source: Developed from reviewed literatures (Bekele et al., 2017, WAGURA, 2014, Hakem et al., 2015)

3. METHODS AND MATERIALS

3.1. Study Area and Period

3.1.1. Study Area

Somali Regional State is one of 9 regions of the Federal Democratic Republic of Ethiopia located in the Eastern part of Ethiopian lowlands. The region has 11 zones and 74 Woreda administration. The study was conducted in Jigjiga town, which is the capital city of Somali Regional State which is located 635 km from Addis Ababa. According to (CSA, 2015)the population of Jigjiga town is 250,000 from which 123,422 are males and 126,578 are females. The people are mainly Somali tribe, Muslim and their income mainly based on small and large scale trading. According to EDHS 2016 ANC was 30%, institutional delivery 23.5%, skilled delivery 26% and PNC 10.3%. Regarding health facilities, the town has one referral hospital, one general hospital, 3 health centers and 20 health posts (government) there is one private general hospital, 27 higher clinics, 10 medium clinics. The study will be conducted in Jigjiga University Sheik Hasan Referral Hospital and Karamara General Hospital.

3.1.2. Study Period

The study was conducted from March 1to April 1,2019.

3.2. Study Design

Institutional based cross-sectional study design was used.

3.3. Source Population

The source population were all mothers who gave birth in Jigjiga Town Hospitals, Somali Regional State, Ethiopia

3.4. Study Population

The study population were all mothers who gave birth in Jigjiga Town in Governmental Hospitals during data collection period.

3.5. Eligibility Criteria for The Study Population

3.5.1. Inclusion Criteria

All mothers who gave birth in Jigjiga Town Governmental Hospitals were included into the study.

3.5.2. Exclusion Criteria

All mothers who gave birth to stillbirth, were excluded from the study.

3.6. Sample Size Determination

3.6.1. Sample Size for the First Objective

The sample size was calculated by using single population formula 95% confidence interval, 5% margin of error and proportion of preterm birth. Applying the formula= $(z\ (\alpha/2))^2\ p\ (1\text{-}p)/d_2$. Where, n= the minimum sample size, z (α/2) = the desired level of confidence interval 95% (1.96). Proportion of preterm birth 25.9% from similar study title in Jimma University Specialized Teaching and Referral Hospital (Bekele et al., 2017). d=margin of error 5% (0.05).

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

Where: - **n=** the minimum sample size required for the study

Z= standard normal distribution (Z=1.96) with 95% confidence interval

P= Prevalence of preterm birth 25.9% from similar study title in Jimma University Specialized Teaching and Referral Hospital (Bekele et al., 2017).

Since the prevalence is low P=25.9% we need to adjust margin of error and the acceptable range of margin of error is 4% to 8%. In my study the minimum margin of error that we can use is 4%.

d=is a tolerable margin of error (d=4%=0.04)

$$\mathbf{n = \frac{(Z\alpha/2)^2\ P\ (1\text{-}P)}{d2}}$$

based on the above assumptions, $\mathbf{n = \frac{(1.96)^2 \times 0.259(1\text{-}0.259)}{(0.04)^2}}$ **n=**461

Then by adding 10% (0.1) non-response rate, the total sample size (n) is

n=461+ (461×0.1) =461+46**=**507**.** Final Sample size is to be 507**.**

3.6.2. Sample Size for the Second Objective

Double population proportion formula was used to determine the sample size for the factors associated with preterm birth. Sample size was calculated for some of the factors affecting preterm birth obtained from different literatures review by using the stat calculation of Epi-info version 7 with the following assumption; Confidence interval=95%, Margin of error= 5%, Power=80%. The ratio of unexposed to exposed equivalent to 1(Table:1).

Table 1: - Sample Size Calculation for the Second Objective on the Magnitude of Preterm Birth and Associated Factors Among Women Who Gave Birth in Jigjiga Town Governmental Hospitals, Eastern Ethiopia, 2019

S/No	Factor	Proportion of Outcome Among Exposed	Proportion of Outcome Among Unexposed	Sample size	Reference
1	HIV status	12%	3.7%	364	(Kahsay, 2016b)
2	History of UTI	25%	15%	540	(WAGURA 2014)
3	Mode of delivery	25.2%	15.5%	580	(WAGURA 2014)

The sample size of the second objective was greater than the first objective; therefore, the final sample size for this study were considered based on second specific objective which was **580**.Then, by considering additional 5% non-response rate. So, the final sample size were **610** mothers.

3.7. Sampling Procedure

All governmental Hospitals in Jigjiga Town were included in the study. Three-month delivery report from the registration taken shows 1036 women gave birth in Jigjiga University Sheikh Hasan Referral Hospital and 1173 at Karamara General Hospital. Thus, the monthly estimated delivery in these hospitals was about 736 and the total sample size of women were proportionally allocated to their population size based on the previous delivery registration. Finally, pregnant women who gave birth at the time of data collection were carefully chosen by using sequential sampling until the sample size was achieved (Figure: 2).

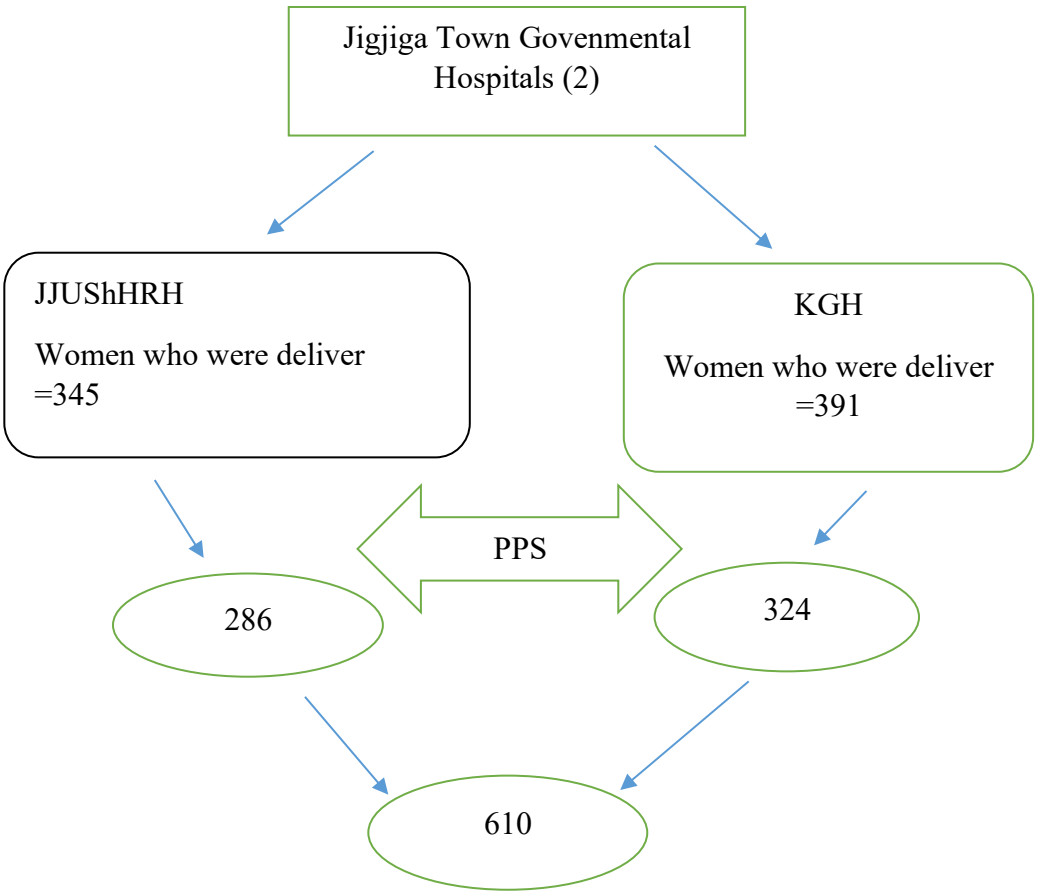

Figure 2: Sampling Procedure for the Study on the Magnitude of Preterm Birth and Associated Factors Among Women Who Gave Birth in Jigjiga Town Governmental Hospitals, Eastern Ethiopia, 2019.

Remark:JJUShHRH-Jigjiga University Sheik Hasan Referral Hospital, KGH-Karamara General Hospital, PPS-Participants ProportionSample.

3.8. Data Collection Methods

3.8.1. Data Collection Instrument

Data were collected using pre designed structured questionnaires which were adapted from different literature reviews and modified based on the study variables (WAGURA, 2014).The questionnaires were prepared originally in English and translated to local languages Af- somali and Amharic by an expert who had bachelor degree in language for purpose of data collection. The tool was modified to obtain information on the main variables: socio-demographic, obstetric and fetal factors. Face to face interview were done with the mothers.

3.8.2. Data Collectors

The data were collected by ten midwives under two supervisors. Five diploma midwives were under the guidance of one BSc nurse holder supervisor for each hospital.

3.8.3. Procedure of Data Collection

Before data collection, two days training were given for both the data collectors and supervisors by the principal investigator. Before interviewing, the data collectors were informing the clients about the aims/purposes, risks and possible benefits of the study, the right and refusal to participate in the study. The collected information was kept confidential. Patients who were willing and sign the voluntary consent form were interviewed. Data was collected through face to face interviews using a structured and pretested questionnaire.

3.9. Variables

3.9.1. Dependent Variable

- Preterm birth

3.9.2. Independent Variables

3.9.2.1. Socio-Demographic Factors; -

- Age
- Marital status
- Educational status
- Residence
- Religion
- Ethnicity
- Occupational status
- Monthly income

3.9.2.2. Maternal Factors

- Parity
- History of preterm birth
- History of abortion
- History of Premature rupture of membrane
- Number of antenatal visit
- Maternal HIV status

- Urinary tract infection during pregnancy
- Hypertension disorders of pregnancy
- Anemia
- GDM
- Mode of Delivery

3.9.2.3. Fetal Factors:

- Congenital malformation
- Sex of the newborn

3.10. Definition of Terms

Anemia in Pregnancy: This is a hemoglobin level <11g/dl as measured antenatal (WHO, 2018).

Gestational Age: Refers to the after conception age of the newborn based on menstrual dates and/or obstetric ultrasound (Kahsay, 2016a).

Gestational Diabetes Mellitus: Is any degree of glucose intolerance with onset or first recognition during pregnancy (WHO, 2012).

Induced Preterm Birth: Means the induction of labor or elective Caesarian section <37 completed weeks of gestation (Raisanen *et al.*, 2013).

Inter-Pregnancy Interval: The duration between one pregnancy and the next. This is calculated to the nearest month as the period between the date of the previous delivery and the date of the last normal menstrual period (LNMP) for the current pregnancy (Deressa *et al.*, 2018).

Low Birth Weight: Birth weight < 2500 grams (Grote *et al.*, 2010).

Parity: The total number of times a woman has been pregnant regardless of the outcome (VandenBroek *et al.*, 2014).

Premature Birth: All deliveries of < 37 completed weeks of gestation or < 259 days since the first day of a mother's last menstrual period (WHO, 2012).

Pregnancy Induced Hypertension: is the development of new hypertension (blood pressure of >145/95 mmHg) in a pregnant woman after 20 weeks of GA with or without protein in the urine (WHO, 2012).

Spontaneous Preterm Birth: Spontaneous onset of labor or labor following premature rupture of membranes (PROM)) occurring <37 completed weeks of gestation (Teklay *et al.*, 2018).

3.11. Data Quality Control

Pretest was done on 5% of the sample size in Mesh General Hospital after translated to the local languages to assess the reliability, clarity, sequence, consistency, understandability and the total time that taken to finish the questionnaire before the actual data collection. Then after, the necessary comments and feedbacks were incorporated in the final tool to improve its quality. Trained midwives were involved for coordination of data collection process and supervision.

Two days training was given for both data collectors and supervisors regarding the objective of the study, data collection tool, ways of data collection, checking the completeness of data collection tool and how to maintain confidentiality. Proper coding and categorization of data were maintained for the quality of the data to be analyzed. All data were checked for completeness, accuracy, clarity and consistency by principal investigator and supervisors. The collected data were checked for completeness, cleaned, edited, coded manually and entered into Epi data version 3.1 to minimize logical errors. Simple frequencies and cross tabulation were done for missing values and variables.

3.12. Data Processing and Analysis

The data were exported to SPSS window version 20 for analysis. Descriptive analysis was done by computing proportions and summary statistics. Then the information was presented by using simple frequencies, summary measures, tables and figures. Binary logistic regression was used to analyze the outcome variable. Bivariable and multivariable logistic regression analyses were done to see the association between the outcome variable and each independent variable.

The goodness of fit was tested by Hosmer- Leme show statistic and Omnibus tests. All variables with $P<0.25$ in the bivariable analyses were included in the final model for multivariable analyses in order to control all possible confounders.

Multi co-linearity test were carried out to see the correlation between independent variables by using standard error and co-linearity statistics (Variance inflation factor >10 and standard error >2 were considered as suggestive of existence of multi co-linearity). Therefore, variables with Variance inflation factor >10 and/ standard errors >2 were dropped. The strength of statistical association was measured by odds ratio with 95 % CI. Adjusted odds ratio along with 95% CI was estimated to identify factors associated with preterm birth. In this study P-value < 0.05 was considered as level of statistical significance.

3.13. Ethical Considerations

Ethical clearance was obtained from the Institutional Health Research Ethics Review Committee (HU-IHRERC College of Health and Medical Sciences,) Haramaya University, a formal letter of permission and support was written to Jigjiga town Governmental Hospitals (Karamara General Hospital and Jigjiga Sheik Hasan Referral Hospital) from Haramaya University. All the study participants were informed about the purpose of the study, their right to refuse and written and signed voluntary consent was obtained from all study participants prior to data collection. The respondents were also being told that the information obtained from them were treated with complete confidentiality and do not cause any harm on them.

3.14. Information Dissemination

The findings of this study was submitted and presented to School of Nursing and Midwifery, School of Graduate Studies, College of Health and Medical Sciences, Haramaya University. It was also being published in to peer-reviewed journal and was kept in Haramaya University, College of Health and Medical Sciences library. Additionally, the findings of this study was also disseminated to Jigjiga University Sheik Hasan Referral Hospital and Karamara General Hospital.

4. RESULT

4.1 Socio-Demographic Descriptive Analyses of the Study Participants

The total numbers of subjects participated in the study was 600 which gave a response rate of 98.4%. The mean (±SD) age of the participants was 28.96 (±3.575) ranging from 21 years to 40 years. Current marital status of the mother 93.3% were married with spouse while 6.7% of them were not with spouse. Religion of participants 84.6% and 11.7% were Muslim and orthodox respectively. Participants education level were 42% not attended formal education and 58% were attended formal education. Residence of participants 78.7% were urban and 21.3% were rural residents. In this study among participants 73.3% were Somali and 11% were Oromo in ethnicity. Occupation of mothers participated 17.3% were paid by government where 82.7% were not paid by government. Family income 93% participant's responds were greater than or equal to 1000 birr where 7% were respond less than1000birr (Table: 2).

Table: 2 Descriptive Analyses among Women Who Gave Birth at Jigjiga Town Governmental Hospitals, Jigjiga, Eastern Ethiopia, 2019

Variables	Catagory	Frequency	Percentage
Age group (in year)	15-35	561	93.5
	>35	39	6.5
Current marital status	Married with spouse	560	93.3
	Currently not with spouse	40	6.7
Religion	Muslim	508	84.6
	Orthodox	70	11.7
	Protestant	22	3.7
Mother level of education	Not attended formal education	252	42
	Attended formal education	348	58
Residence	Urban	472	78.7
	Rural	128	21.3
Ethnicity	Somali	440	73.3
	Amhara	58	9.7
	Oromo	66	11
	Tigrai	16	2.7
	others	20	3.3
Family monthly income	<1000 EBR	42	7
	≥1000 EBR	558	93
Occupation	Paid by government	104	17.3
	Not paid by government	496	82.7

4.2. Obstetric History Descriptive Analyses of the Study Participants

Concerning gravidity of study participants 88% and 12% were multigravida and primigravida respectively. Regarding parity of participants 85.8% were multiparous and 14.2% were primiparous women. About ANC attendance 58.8% had ANC attendance among them 81% had more than four times ANC visits. Obstetric history of study participants 13.5% had abortion,48.5% had UTI, 10.3% and 6.2% had hypertension disorder of pregnancy and gestational diabetes mellitus respectively. About70.2% of participants had greater than or equal to 11 g/dl hemoglobin level. Among study participants 7.2% and 7.3% had PROM and induced onset of labor respectively. Regarding mode of delivery 72.2% were delivered through spontaneous vaginal delivery where about 27.8% were delivered by operative delivery respectively. Sex of newborn 53.5% were female sex and Regarding birth weight 14.2% were low birth weight (<2500gram) (Table:3).

Table ;3 Descriptive Analyses among Women Who Gave Birth at Jigjiga Town Governmental Hospitals, Jigjiga, Eastern Ethiopia, 2019

Variables	Category	Frequency	Percentage
Gravida	Primigravida	72	12
	Multigravida	528	88
Parity	Primipara	85	14.2
	Multipara	515	85.8
ANC attendance	Yes	353	58.8
	No	247	41.2
Number of ANC visits	Less than four times	286	81
	Greater than four times	67	19
History of Abortion	Yes	81	13.5
	No	519	86.5
History of UTI	Yes	291	48.5
	No	309	51.5
History of HTN disorder of pregnancy	Yes	62	10.3
	No	538	89.7
History of GDM	Yes	37	6.2
	No	563	93.8
Hemoglobin level	<11 g/dl	179	29.8
	≥11 g/dl	421	70.2
HIV status	Positive	2	0.3
	Negative	534	89
	Unknown status	64	10.7
History of PROM	Yes	43	7.2
	No	557	92.8
History of preterm birth	Yes	58	9.7
	No	542	90.3

Continued

Onset of labor	Spontenous	556	92.7
	Induced	44	7.3
Mode of delivery	SVD	433	72.2
	Operative delivery	167	27.8
Pregnancy outcome	Singleton	593	98.8
	Twins or more	7	1.2
Sex of newborn	Male	279	46.5
	Female	321	53.5
Birth weight	<2500 gram	85	14.2
	≥2500 gram	515	85.8
Congenital abnormality	Yes	10	1.7
	No	590	98.3

4.3 Magnitude of Preterm Birth

The magnitude of preterm birth was 12.3%;95%CI:(9.7%,14.9%)(Figure:3)

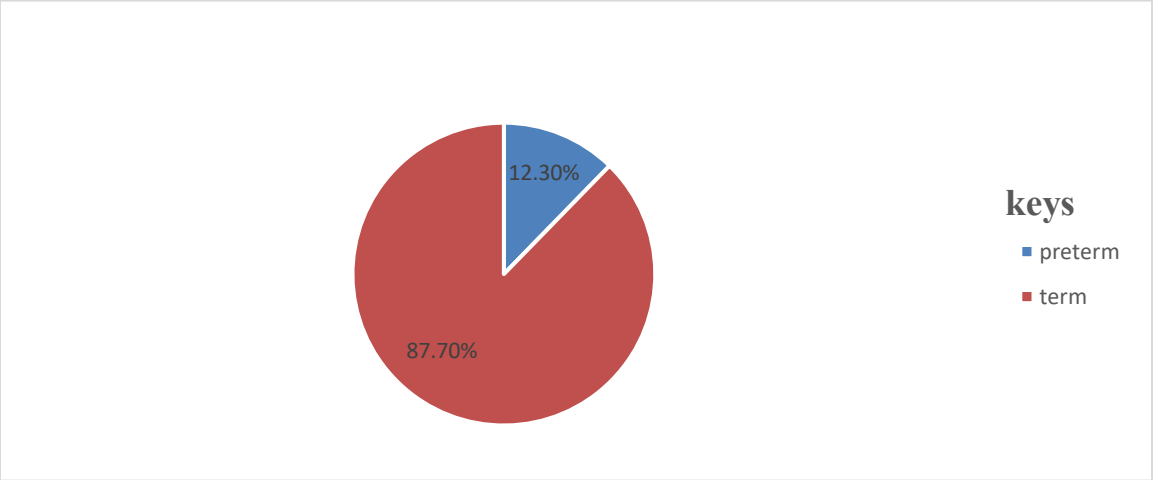

Figure:3 Magnitude of Preterm Birth among Women Who Gave Birth at Jigjiga Town Governmental Hospitals, Jigjiga, Eastern Ethiopia, 2019

4.4. Factors Associated with Preterm Birth

4.4.1 Bivariable Analyses on Factors Associated with Preterm Birth

In bivariable analyses, Women age >35 years was4.1 times [COR=4.10;95%CI: (2.001,8.393)] more likely to have preterm birth compared to women of age less than 35 years old. Women who married with spouse currently were 3.94times [COR=3.94;95%CI:(1.931,8.036)] more likely to have preterm birth compared to women not with spouse currently. Women who didn't attend formal education were 2.91 times [COR=2.91;95%CI:(1.753,4.845)] more likely to have preterm birth compared to those attended formal education. Women of rural resident were 5.5 times [COR=5.5;95%CI:(3.285,9.112)] more likely to have preterm birth compared to urban residence. Mothers occupation not paid by government were2.6 folds[COR=2.6;95%CI:(1.095,6.151)] more likely to have preterm birth compared to those paid by government. Multiparous women had 2 folds [COR=2.0;95%CI: (0.841,4.773)] more likely to have preterm birth compared with primiparous women. Mothers who had not ANC attendance had 4.7 times [COR=4.7;95%CI: (2.707,8.017)] more likely to have preterm birth compared to those who had ANC attendance. Women who had abortion were 12.8 times [COR=12.84;95%CI: (7.374,22.360)] more likely to have preterm birth than those hadn't abortion. Mothers who had UTI were 8.4 folds [COR=8.43;95%CI: (4.235,16.781)] more likely to have preterm birth compared to women who hadn't UTI. Women who had hypertension disorder of pregnancy were 18.2 folds [COR=18.22;95%CI: (9.972,33.286)] more likely to have preterm compared with those who hadn't hypertension disorder of pregnancy. Mothers who had anemia and history of preterm birth were 6.9 and 17.8 times [COR=6.9;95%CI: (4.054,11.726)], [COR=17.8;95%CI: (9.624,32.845)] more likely to have preterm than those who hadn't respectively. Female sex newborns were 7.6 folds [COR=7.62;95%CI: (3.716,15.614)] more likely to be premature than male sex newborns. Low birth weight newborns were 21.7 time [COR=21.795%CI: (16.972,29.067)] more likely to be premature than newborns with normal birth weight(Table:4)

Table 4: Bivariable Logistic Regression Analyses for Factors Associated with Preterm Birth of Women Who Gave Birth at Jigjiga Town Governmental Hospitals, Jigjiga, Eastern Ethiopia, 2019

Variables	Preterm birth		COR(95%CI)	P value
	Yes	No		
Age groups				
15-35	61(10.9%)	500(89.1%)	1	**0.000**
>35	13(33.3%)	26(66.7%)	4.10(2.001-8.393)	
Current marital status				
Married with spouse	61(10.9%)	499(89.1%)	1	**0.000**
Currently not with spouse	13(32.5%)	27(67.5%)	3.94(1.931-8.036)	
Mother level of education				
Not attended formal education	48(19.0%)	204(81.0%)	2.91(1.753-4.845)	**0.000**
Attended formal education	26(7.5%)	322(92.5%)	1	
Residence				
Urban	35(7.4%)	437(92.6%)	1	**0.000**
Rural	39(30.5%)	89(69.5%)	5.5(3.285-9.112)	
Occupation				
Paid by government	6(5.8%)	98(94.2%)	1	**0.030**
Not paid by government	68(13.7%)	428(86.3%)	2.6(1.095-6.151)	
Family monthly income				
<1000 EBR	7(16.7%)	35(83.3%)	1.5(0.626-3.432)	**0.378**
≥1000 EBR	67(12.0%)	491(88.0%)	1	
Parity				
Primipara	6(7.1%)	79(92.9%)	1	**0.117**
Multipara	68(13.2%)	447(86.8%)	2.0(0.841-4.773)	
ANC attendance				
Yes	20(5.7%)	333(94.3%)	1	**0.000**
No	54(21.9%)	193(78.1%)	4.7(2.707-8.017)	
History of abortion				
Yes	39(48.1%)	42(51.9%)	12.8(7.374-22.360)	**0.000**
No	35(6.7%)	484(93.3%)	1	
History of UTI				
Yes	64(22.0%)	227(78.0%)	8.43(4.235-16.781)	**0.000**
No	10(3.2%)	299(96.8%)	1	
History of HTN disorder of pregnancy		26(41.9%)	18.22(9.972-	**0.000**
Yes	36(58.1%)	500(92.9%)	33.286)	
No	38(7.1%)		1	
History of gestational DM				
Yes	6(16.2%)	31(83.8%)	1.4(0.567-3.501)	**0.460**
No	68(12.1%)	495(87.9%)	1	
Hemoglobin level(g/dl)				
<11 g/dl	51(28.5%)	128(71.5%)	6.9(4.054-11.726)	**0.000**
≥11 g/dl	23(5.5%)	398(94.5%)	1	
History of PROM				
Yes	7(16.3%)	36(83.7%)	1.4(0.608-3.324)	**0.416**
No	67(12.0%)	490(88.0%)	1	

Continued				
History of preterm birth	34(58.6%)	24(41.4%)	17.8(9.624-32.845)	**0.000**
Yes	40(7.4%)	502(92.6%)	1	
No				
Onset of labor				
Spontaneous	67(12.1%)	489(87.9%)	1	**0.455**
Induced	7(15.9%)	37(84.1%)	1.4(0.592-3.222)	
Mode of delivery				
SVD	40(9.2%)	393(90.2%)	1	**0.312**
Operative delivery	34(20.4%)	133(79.6%)	2.5(1.527-4.131)	
Sex of newborn				
Male	9(3.2%)	270(96.8%)	1	**0.000**
Female	65(20.2%)	256(79.8%)	7.62(3.716-15.614)	
Birth weight				
<2500 gram	62(72.9%)	23(27.1%)	21.7(16.972-29.067)	**0.000**
≥2500 gram	12(2.3%)	503(97.7%)	1	

4.4.2. Multivariable Analyses On Factors Associated with Preterm Birth

In multivariable analyses, Women rural residence was 4.48 times [AOR=4.48;95%CI:((1.389,14.444)] more likely to have preterm birth than urban. Woman who have history of abortion was 5folds [AOR=5.006;95%CI:((1.863,13.447))] more likely to have preterm birth than who had no history of abortion. Woman who have history of hypertension disorder of pregnancy was 3.3 folds [AOR=3.321;95%CI:((1.081,10.202)] more likely to have preterm birth than who had no history PIH. Newborns of female sex was 8.3 folds [AOR=8.317;95%CI: ((4.557,17.050)] more likely to be prematurely delivered compared to male sex. Newborns of less than 2500-gram birth weight was 3.79 folds [AOR=3.799;95%CI: ((1.553-9.839)] more likely to be prematurely delivered than birth weight of greater than or equal to 2500 gram (Table:5)

Table: 5 Multivariable Logistic Regression Analyses for Factors Associated with Preterm Birth Among Women Who Gave Birth at Jigjiga Town Governmental Hospitals, Jigjiga, Eastern Ethiopia, 2019

Variables	Preterm birth		COR(95%CI)	AOR(95%CI)
	Yes	No		
Age groups (in year)				
15-35	61(10.9%)	500(89.1%)	1	
>35	13(33.3%)	26(66.7%)	4.10(2.001-8.393)	0.372(0.084-1.641)
Current marital status				
Married with spouse	61(10.9%)	499(89.1%)	1	
Currently not with spouse	13(32.5%)	27(67.5%)	3.94(1.931-8.036)	0.613(0.151-2.493)
Mother level of education				
Not attended formal education	48(19.0%)	204(81.0%)	2.91(1.753-4.845)	0.642(0.155-2.669)
Attended formal education	26(7.5%)	322(92.5%)	1	
Residence				
Urban	35(7.4%)	437(92.6%)	1	
Rural	39(30.5%)	89(69.5%)	5.5(3.285-9.112)	4.480(1.389-14.444)*
Occupation				
Paid by government	6(5.8%)	98(94.2%)	1	
Not paid by government	68(13.7%)	428(86.3%)	2.6(1.095-6.151)	0.903(0.189-4.310)
Parity				
Primipara	6(7.1%)	79(92.9%)	1	
Multipara	68(13.2%)	447(86.8%)	2.0(0.841-4.773)	0.642(0.135-3.050)
ANC attendance				
Yes	20(5.7%)	333(94.3%)	1	1.592(0.374-6.784)
No	54(21.9%)	193(78.1%)	4.7(2.707-8.017)	
History of abortion				
Yes	39(48.1%)	42(51.9%)	12.8(7.374-22.360)	5.006(1.863-13.447)*
No	35(6.7%)	484(93.3%)	1	

		Continued		
History of UTI				
Yes	64(22.0%)	227(78.0%)	8.43(4.235-16.781)	1.856(0.550-6.261)
No	10(3.2%)	299(96.8%)	1	
History of HTN disorder of pregnancy				
Yes	36(58.1%)	26(41.9%)	18.22(9.972-33.286)	3.321(1.081-10.202)*
No	38(7.1%)	500(92.9%)	1	
Hemoglobin level(g/dl)				
<11 g/dl	51(28.5%)	128(71.5%)	6.9(4.054-11.726)	0.714(0.253-2.013)
≥11 g/dl	23(5.5%)	398(94.5%)	1	
History of preterm birth				
Yes	34(58.6%)	24(41.4%)	17.8(9.624-32.845)	1.944(0.644-5.874)
No	40(7.4%)	502(92.6%)	1	
Sex of newborn				
Male	9(3.2%)	270(96.8%)	1	8.317(4.557-17.050)*
Female	65(20.2%)	256(79.8%)	7.62(3.716-15.614)	
Birth weight				
<2500 gram	62(72.9%)	23(27.1%)	51.7(26.972-99.067)	3.799(1.553-9.839)*
≥2500 gram	12(2.3%)	503(97.7%)	1	

5. DISCUSSION

In this study the magnitude of preterm birth was 12.3%. History of abortion, hypertension disorder of pregnancy, sex, low birth weight and residence were significantly associated with preterm birth. This finding is almost similar with A cross sectional study done in Debremarkos Town which reported the prevalence of premature birth was 11.6% (Bekele et al., 2015).

The finding of preterm birth was 12.3%. This finding is lower than a study done in Jimma University Specialized Teaching and Referral Hospital which reports the prevalence rate of premature delivery was 25.9% (Bekele et al., 2017). This discrepancy might be due to difference in health seeking behavior of study participants as well as difference in study area. This finding also lower than a prospective study done in a tertiary medical center in Southeast Nigeria showed that the prevalence rate was 16.9% (Iyoke et al., 2018) and the difference might be due to high C/S in Nigeria.

The finding of this study much higher than a facility based cross-sectional study conducted in Gondar town health institutions that reported the prevalence of premature delivery was found to be 4.4% (Kahsay, 2016) and the discrepancy might be due to better ANC follow up in highlands were contribute for reduced magnitude of preterm birth and difference the time of study.

This finding also higher than case control study done in Latin America in the National Hospital Sergio E. Bernales, that reported the prevalence of preterm birth in the population was 7.4% (Ahumada-Barrios et al., 2016). This difference might be due to resource gap between this two world and also another reason could be difference in study designs.

This study revealed that a significant association was found between mothers who had hypertensive disorder of pregnancy had about 3.3 times higher risk of having preterm birth than mothers without hypertensive disorder of pregnancy. This finding is in consistence with cross sectional studies conducted in in Gondar town health institutions (Kahsay, 2016a) ,a case control study which was done in three maternal hospitals of Ardabil, Iran pregnancy (Alijahan et al., 2014),A research conducted in National Ribat University Teaching Hospital North Sudan (Hakem et al., 2015) and A hospital based cross sectional study which was conducted in Maternity Unit, Kenyatta National Hospital, Nairobi (WAGURA, 2014)mothers who had hypertension disorder of pregnancy 5 times,3.6 times,3.8 times and 8 times more likely to have premature birth than those

without hypertension disorder of pregnancy respectively. The reason for this might be due to the fact that complications of pregnancy Induced hypertension can cause vascular damage to placenta. This induces the oxytocin receptors, which results in preterm labor and delivery.

This study revealed that a significant association was found between Mothers who had abortion had about five times higher risk of having preterm birth than mothers without history of abortion. This finding is in line with A case control study conducted in the Department of Obstetrics and Gynecology teaching hospital in Jalandhar, Punjab, India shows that Mothers with history of abortion and history of previous premature birth were more likely to have premature birth (Mahajan and Magon, 2017) and Institutional based cross sectional study that conducted at Debremarkos Town health institution(Bekele et al., 2017). This may be due to risk of infection related to recurrent abortion that affects the competency of the cervix which leads to premature birth.

Another significant associated factor is newborn of female sex is 8.3 times more likely to be premature than male sex. This finding is in line with A cohort study done in a rural Bangladeshi shows a female newborn was 9.0 times more likely to be premature than a male newborn (Shah et al., 2014).

Another significant associated factor is low birth weight of the newborn 3.8 folds more likely to be premature than birth weight greater than 2500gram. This finding is in line with A study done in Jimma University Specialized Teaching and Referral Hospital that shows newborn with low birth weight had 6.8 folds more likely to premature (Bekele et al., 2017). This may be due to reduced fetal wellbeing like fetal distress which leads to induced labor that results premature birth.

The study found that being a rural residency increased the risk of preterm birth by 4.5 folds compared to urban. This finding in line with a study done in Jimma University Specialized Teaching and Referral Hospital significant associations were found in those respondents who live in the rural area and will have two-time premature delivery as compared to those live in urban place of residency. ((Bekele et al., 2017). This could be related to the poor economic situation faced by residences and distance from health facility that put pregnant women under social and economic stress that might contribute to preterm birth.

Limitations of this study were some data taken from patient card, some important variables not included, bureaucracy of finance office and shortage of time.

6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

In this study the magnitude of preterm birth in Jigjiga Town Governmental Hospitals is low. History of abortion, hypertension disorder of pregnancy, sex, low birth weight and residence were significantly associated with preterm birth. Therefore, still efforts have to be made to reduce the magnitude of preterm birth and for timely management of hypertension disorder of pregnancy and reduction of recurrent abortion through family planning service and health education on reproductive health. Identifying pregnant women at the risk of preterm birth and proving quality healthcare, community health education and awareness campaigns may reduce the rate of preterm birth and its sequel.

6.2 Recommendations

- Enhance prompt recognizing of obstetric complications particularly hypertension disorder of pregnancy.
- Health education on the risks posed by recurrent abortion should be emphasized to women of reproductive age and their communities and family planning should be promoted.
- Screening for well gestational development during the antenatal period should be done regularly and management should be offered promptly when needed to reduce low birth weight.
- Further researches should be performed to find out other possible associated factors of preterm birth.

Therefore, it is necessary to conduct an appropriate prevention programme to reduce the incidence of preterm birth in Jigjiga Town, Eastern Ethiopia. Ethiopian Federal ministry of Health in collaboration with regional health bureau, international and local NGO's health professionals and communities work together to tackle the problem.

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8.ANNEXES

8.1. PARTICIPANT INFORMATION SHEET AND INFORMED VOLUNTARY CONSENT FORM

8.1.1. English Version Participant Information Sheet and Informed Voluntary Consent Form

My name is_____, I am working as data collector for the study being conducted in this health care institution by **Ibrahim Ismail Muhumed** who is studying for his Master′s degree at Haramaya University, College of Health and Medical Sciences, I kindly request

you to lend me your attention to explain you about the study and being selected as the study participant.

1. The Study/Project Title

Magnitude of preterm birth and associated factors among women who will give birth at Jigjiga Town Governmental Hospitals, Jigjiga, Eastern Ethiopia,2019 G.C

2. Purpose/Aim of The Study

The purpose of this study is to conduct a thesis as a partial requirement for the fulfillment of Master′s degree in Maternity and Neonatology in Nursing for the principal investigator. It will also give information for the institution in order to determine the Magnitude of preterm birth and associated factors among women and give direction about intervention programs. Likewise, the findings of this study will play a key role for Jigjiga University Sheik Hasan Referral Hospital and Somali Regional Health Bureau, different Non-Governmental Organizations (NGOs) and Policy makers to plan training programs on preterm birth complication prevention and control measures.

3. Procedures and Duration

If you are willing to participate in this study, you need to understand and put the signature on the agreement form. Then after, I will give you a questionnaire and put pertinent data which will be helpful for this study. Totally, there are around 29 questions that you are going to respond, and it will take about a maximum of 25-30 minutes. So, I kindly request you to give me your time.

4. Risks and Benefits

There may be minimal risk in participating in this research project. But, it has many advantages. So, you are requested to spend your time willingly to respond your information to the questionnaire. If you participate in this study, there may not be direct benefit to you; but, your participation is very important to conduct this study. Ultimately, this will help us to identify the gap and take appropriate measures by concerned bodies.

5. Confidentiality

The information collected from this study will be kept confidential and the information about you which will be collected for this study will be stored in a file without your name, but a code number will be given to it. In addition, it will not be revealed to anyone except the principal investigator and will be kept locked with key.

6. Rights

You have the right to refuse from participating in this study. You can choose not to respond to some or all questions if you do not want to give your response. You have also a full right to withdraw from this study at any time whenever you want, and this will not label you for any loss of benefits which you otherwise are entitled. You have the full right not to answer any question that you do not want to answer it.

7. Contact Address

If there are any questions or problems any time about the study or the procedures, please contact:

Ibrahim Ismail Muhumed Cell Phone: +251911315293

Gmail: ibrahimismail1131@gmail.com

Contact address of the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone **0254662011 or P.O. Box 235, Harar**.

8. Declaration of Informed Voluntary Consent

I have read/ she/ He has read for me the participant information sheet. I have clearly understood the purpose of the study, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any issues. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declared my voluntary consent to participate in this study with my signature.

Name and Signature of Participant: _____Date____ _____Time_____

Name and Signature of Data Collector: _____Date__ _____Time _____

Thank you!!!

8.1.2. English Version Information Sheet and Informed Voluntary Consent Form for Head of Institution

My name is_____, I am working as data collector for the study being conducted in this health care institution by Ibrahim Ismail Muhumed who is studying for his Master's degree at Haramaya University, College of Health and Medical Sciences, I kindly request you to lend me your attention to explain you about the study and being selected as the study participant.

1.The Study/Project Title

Magnitude of preterm birth and associated factors among women who will give birth at Jigjiga Town Governmental Hospitals, Jigjiga, Eastern Ethiopia,2019 G.C

2. Purpose/Aim of The Study

The purpose of this study is to conduct a thesis as a partial requirement for the fulfillment of Master's degree in Maternity and Neonatology in Nursing for the principal investigator. It will also give information for the institution in order to identify the Magnitude of preterm birth and associated factors among women who will give birth at Jigjiga University Sheik Hasan Referral Hospital and Karamara General Hospital and give direction about intervention programs. Likewise, the findings of this study will play a key role for Jigjiga University Sheik Hasan Referral Hospital, Somali Regional State Health Bureau, different Non-Governmental Organizations (NGOs) and Policy makers to plan training programs on preterm birth complication prevention and control measures.

3. Procedures and Duration

I will interview the mother's using interview to provide me pertinent data that is helpful for the study. Totally, there are around 29 questions to be answered by clients, and the questionnaire will take about a maximum of 25-30 minutes.

4. Risks and Benefits

The risk of participating in this study is minimal, but only taking few minutes from clients. There would not be any direct payment for participating in this study. But the findings from this research have many advantages.

5. Confidentiality

The information collected from this study will be kept confidential and the information about a participant which will be collected for this study will be stored in a file without the participants' name, but a code number will be given to it. In addition, it will not be revealed to anyone except the principal investigator and will be kept locked with key.

6. Rights

Participation for this study is fully voluntary. The participants have the right to declare to participate or refuse in this study. If they decide to withdraw, they have the right to withdraw from

the study at any time and this will not label them for any loss of benefits which they otherwise are entitled. They do not have to answer any question that they do not want to answer.

7. Contact Address

If there are any questions or problems any time about the study or the procedures, please contact:

Ibrahim Ismail Muhumed Cell Phone: +251911315293

Gmail: ibrahimismail1131@gmail.com

Contact address of the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone **0254662011 or P.O. Box 235, Harar**.

8. Declaration of Informed Voluntary Consent

I have read the participant information sheet. I have clearly understood the purpose of the study, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any issues. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declared my voluntary consent on behalf of _____management to allow this study to be conducted in the hospital with my initials (signature).

Name and Signature of medical director of the Hospital: _____Date____ _____Time_____

Name and Signature of Data Collector: _____Date__ _____Time _____

Thank you!!!

8.1.3. Amharic Version Participant Information Sheet and Informed Voluntary Consent Form

በመጠይቁለሚሳተፉእናቶችየመረጃመስጫእናስምምነትመሙያቅጽ

ስሜ ----------እባላለዉ::በአሁኑሰአትከእርስዎጋርየተገኘዉትበሀረማያዩኒቨርሲቲ፤ ሀረርጤናእናህክምናሳይንስኮሌጅየሁለተኛዲግሪተማሪለሆነዉኢብራሂምእስማኤል ሙሀመድጠቃሚየሆነመረጃለመሰብሰብነዉ::
ስለሆነምስለጥናቱየተወሰነማብራሪያተሰጥቶዎትየጥናቱተሳታፊይሆኑዘንድትኩረትዎንሰጥተዉበጥሞናእንዲከታተሉበትህትናእ ጠይቃለሁ::

1. **የጥናቱርእስ፡-**

በሃገራችንምስራቃዊክፍልበሚገኘውጅግጅጋከተማዉስጥባለየመንግስትጤናተቐምላይስለያለጊዜውየሚወለዱህፃናትመጠንእና ተዛማጅምክንያቶቻቸውንማጥናትነዉ::

2. **የጥናቱአላማ፡-**

መሰረታዊአላማዉየሁለተኛዲግሪዋንበእናቶችእናጨቅላህጻናትእንክብካቢትምህርትለሚማረዉተማሪኢብራሂምሞሀመድየመ መረቂያጽሁፍማዘጋጀትነዉ::
ከዚህጥናትየሚገኘዉመረጃለጅግጅጋዩንቨርሲቲሼከሀሰንሪፊራልሆስፒታልስለያለጊዜውየሚወለዱህፃናትመጠንእናተዛማጅምክ ንያቶቻቸውመረጃይሰጣልእናየመፍትሄእርምጃለመዉሰድአቅጣጫይጠቁማል. በተመሳሳይመልኩ, የዚህጥናትግኝትለጅግጅጋዩንቨርሲቲሼከሀሰንሪፊራልሆስፒታል፣የሶማሌክልልጤናቢሮ፣ የተለያዩመንግስታዊያልሆኑድርጅቶችእናየፖሊሲአውጭዎችስለያለጊዜውየሚፈጠርወሊድችግሮችመከላከያእናየመቆጣጠርእር ምጃዎችእንዲሁምየስልጠናፕሮግራሞችእንዲያወጡትልቅአስተዋጽኦአለው.

3. **የመጠይቁአካሄድእናየሚፈጀዉጊዜ፡-**

መጠይቁበጠቅላላዉ 29 ጥያቄዎችያሉትሲሆንበአማካይ 25-30 ደቂቃይወስዳል:: ስለሆነምይቺንጊዚካለዎትጊዚቀንሰዉለመጠይቁይፈቅዱልኝዘንድበትህትናእጠይቅዎታለዉ:: ጥያቄዎቹንበቀጥታየምጠይቀዎትይሆናል.

4. **የጥናቱጥቅምእናጉዳት፡-**

በዚህጥናትበመሳተፍዎለመጠይቁከሚወስድብዎጊዚዉጭበእርስዎላይየሚደርስብዎጉዳትየለም:: በጥናቱበመሳተፍዎየሚሰጠዎየተለየከፍያየለም፤ነገርግንጥናቱትልቅዋጋአለዉ::

5. **የመረጃዎደህንነት፡-**

የሚሰጡንመረጃበሚስጥርስለሚያዝሊያሳስብዎትአይገባም:: በምንምአይነትመንገድመረጃዎለማይመለከታቸዉአካላትአይገለጽም፤ጥናቱምጠቅላላእንጅእርስዎንብቻበማጣቀስአይገልጽም፤ ከመጠይቁላይምየእርስዎስምአይኖርም::

6. **በጥናቱያለዎትመብት፡-**

ይህጥናትየእርስዎንሙሉፈቃደኝነትየሚሻሲሆንበጥናቱየመሳተፍምሆነያለመሳተፍሙሉመብትኣለዎት:: የጥናቱአካልለመሆንፈቃደኛከሆኑመልስለመስጠትፈቃደኛያልሆኑትንጥያቂያለመመለስእንዲሁምከጥናቱበማንኛዉምጊዚየማቐ ረጥመብትሲኖርዎትበዚህምምክንያትየሚደርስብዎየተለየየጥቅምመጉደልወይምጉዳትፈጽሞሊኖርአይገባም::

7. **የጥናቱአድራሻ፡-**

ጥናቱበሚካሄድበትማንኛዉምጊዜየጥናቱንአካሄድበተመለከተወይምሌላማንኛዉምጥያቄካለዎትከዚህበታችበተሰጠዉአድራሻ መገናኘትይቻላል::

- ዋናዉአጥኚ፡- ኢብራሂምሞሀመድ

የመረጃመረብአድራሻ፡- ibrahimismail1131@gmail.com

ስልክቁጥር፡-+251911315293

- የተቐማዊጤናምርምርስነ-ምግባራዊክትትልኮሚቴየቢሮስልክቁጥር፡- 0254662011 ፖ.ሳ.ቁ. 235፤ሀረር፣ ኢትዮጵያ

8. ከላይበቀረበዉየግንዛቤማስጨበጫመሰረትየጥናቱተሳታፊለመሆንየፈቃደኝነትማረጋገጫመስጠት፡- ስለጥናቱየግንዛቤማስጨበጫመረጃዉተነብቦልኛል/አንብቢያዋለዉ::ስለጥናቱመሰረታዊአላማ፤አካሄድ፤ጥቅምእናጉዳት፤ የመረጃዬደህንነት፤የተሳትፎዬመብትእናየአጥኚዉአድራሻተገልጾልኛል::

በጥናቱጊዜለሚያጋጥሙኝግልጽያልሆኑጥያቄዎችመጠየቅእንደምችልእናበማንኛውምጊዜእራሴንከጥናቱየማቐረጥእድሉተሰጥቶ ኛል፡፡በዚህምመሰረትበጥናቱለመሳተፍፈቃደኛመሆኔንከዚህበታችበተቀመጠዉፊርማዬአረጋግጣለዉ፡፡

የተሳታፊዉስምእናፊርማ: _____ቀን____ _____ሰአት _____

የመረጃሰብሳቢዉፊርማ: _____ቀን__ _____ሰአት _____

ለትብብርዎከልብእናመሰግናለን!!!!

8.1.4. Af-Somali Version Participant Information Sheet and Informed Voluntary Consent Form
Foomka xogta iyo ogolanshaha ka qaybgalaha

Subax/galab wanaagsan, magacaygu waa……

Waxaan ahay xog uruuriye, waxaan uruurinayaa xogta daraasada u sameynayo Ibrahim ismacil muxumed oo ah arday wax kabarta Jaamacada Haramayaa, kulliyada caafimaadka si u udhamaysto waxbarashadisa shahadada masterta ee caafimaadka hoyada iyo caruurta sidaa

daraadeed si aad unoqoto qof ka qaybgala daraasaadkan, fadlan akhriso ama halaguu akhriyo heshiiskan. Waxaan rabaa inaan su'aalo ku weydiiyo ku saabsan dhalmada so hormarta wakhtigeeda, waxaanan u baahanahay inaad saxeexdo ama aad calaamadayso warqada. Fadlan waqti qaado aad ku go'aansato inaad ka qaybgasho daraasaadkan, waxaanad fahmina na fadlan waad iwaydiin karta.

1. **Ciwaanka darasaada**:- waa baaxadda dhalmada so hormarta wakhtigeeda iyo waxyaabaha la xidhiidha ama sababa dhalmada wakhtigeeda sohor marta ee haweenka uu imaada fosha ama dhalmada cusbitalkan ee kunool magaalada jigjiga.

2. **Muhiimada daraasada: -** Si loo ogaado baaxadda dhalmada so hormarta wakhtigeeda iyo waxyaabaha la xidhiidha ee haweenka uu imaada fosha ama dhalmada cusbitalkan Waxaana raacsan taas qorista buuga shahadada maastarka lagu qaato taaso faaido uleh mamulka cusbitalka iyo xafiska caafimadka qaybta qorshayta sinaysa tusmo si ay uqorshaytan hawlaha laqabanyo ee laxidhiidha dhalmada so hormarta wakhtigeeda qaabki ay uqabanlahayen .

3. **Xilliga iyo sida loo fulinayo: -** hadi aad naga ogolato inaad ka qayb qadato daraasadkan waxa lobahanyahay inaad fahanto ood sexexaga nogu saxeexdo fomka heshiska. Kadib waxan kuwaydinayna sualaha daraasadkan oo ka kooban 29 sualood kuwaaso ugu badnaan 25 ilaa30 daqiiqa ah qaadanaya si aad uga jawaabto.

4. **Halista iyo Faaiidada: -** inaad Daraasadkan kaqaybqaadato wax dhobaato ah malahakaliya wakhtiga oo lagaa isticmaalo. Fadlan, hadaad u aragtid dhib nala socodsii adigoo dagan.Balse faaidoyin badan ayu leyahay inaad ka qayb qaadato daraasadkan Mana jirto wax kale oo lagugusiinayo ka qaybqaadashadeeda. Haase ahaatee, warbixintani waxay u faa‟‟iideneysaa dawladeena si ay u ogaato heerka ay taagantahay baaxadda dhibaatada dhalmada so hor marta wakhtigeeda ee hoyoyinka kunool jigjiga iyo waxyaalaha sababa si ay uuga hortagto una xakameyso dhibaatooyinkaas

5. **Kalsoonida: -** waxaan kuu ballan qaadaynaa in jawaabaha aad bixisid sir ahaan loo ilaalin doono. Warbixin kastood na siisaana waxaa loo diiwaan galin doonaa koodh ahaan, mana ahan magacaaga dhabta ah.wax kastoo laqoreyna waa la tirtiri markey dhammaato daraasadu. Sidaa darted, haka wal walin

6. **Xaqa ka qayb galaha:** ka qayb qaadashadaadu waxay ku xidhantahay kaliya ogolaanshahaaga, marwalbana waxaad awood u leedahay inaad diido ka qayb qaadashada xog uruurinta markasta oo aad u baahato, wax dhibana kala kulmi meysid helitaanka adeega caafimaadka, wixii su"aala ood tabaneyso wey kuu bannaantahay inaad iweydiiso.

7. **Ciwaanka aad laxidhidhayso:**Hadii ay jirto wax dheeriya ood tabaneysidna waxaad weydiinkarta masuulka magiciisu yahay, **Ibrahim Ismail Muhumed. Talafonka:** +251911315293 **Ciwaanka imelka**: ibrahimismail1131@gmail.com **Ciwaanka xarunta daraasadka ee Jaamacada qaybta Caafimadka ee xafiiska. Talafanka:** 0254662011 ama sanduqa bostada 235, Harar

8. **Foomka sixiixa:**

Xog uruurintan ujeedadeeda, faaiidadeeda, dhibkeeda iyo xaqa aan leehay waa la ii sheegey waana la ii akhriyey. Waxaana la isiiyey jaanis aan ku weydiin karo su"aasha aan rabo taasoo ku saabsan daraasadan.Waxaa kaloon ogaadey ka qayb qaadashadeydu iyo sixiixeygu kaliya inay ku xidhantahay ogolaanshaheyga.Kana tagi karo markasta oon u baahdo oon dhib u keeneyn nolosheyda.waxan ku cadeeynaya saxeexayga inaan ogoladay ka qayb qaadashada daraasadkan..

Magaca ka qayb galaha_____saxeexa_____tarikhda_____wakhtiga/sacada____

Magaca xog ururiyaha_____ saxeexa_____tarikhda_____wakhtiga/sacada____

AAD AYAD UMAHADSANTAHAY!!

8.2: English Version Questionnaire

HARAMAYA UNIVERSITY

POST GRADUATE PROGRAM DIRECTORATE

Dear Respondents

This questionnaire is prepared to assess Magnitude of Preterm Birth and Associated Factors among women who will give birth at Jigjiga town Governmental Hospitals, Jigjiga, Eastern Ethiopia,2019

G.C. The assessment is made for a partial requirement for the fulfillment of Master's degree in maternity and neonatology in Nursing for the principal investigator. The questionnaire contains both closed and open ended questions. Therefore, you are kindly requested to provide genuine response to the questions. The information that you will provide is confidential and will be used only for the purpose of this study. If you have any question, don't hesitate to ask the data facilitator. Your cooperation and participation until the completion of the questionnaire is very necessary for the successful completion of the assessment.

Thank you in advance for your cooperation!!!

Data collector's sign: _____ Date of data collection_____

Identification Code_____

Questionnaire for the Study of Magnitude of Preterm Birth and Associated Factors Among Women Who Will Give Birth at Jigjiga Town Governmental Hospitals, Eastern Ethiopia, 2019

Content: two sections

1. **Socio-demographic characteristics**
2. **Maternal and Neonatal information**

Instruction: Encircle The Response in the Response Column

S/No	Questions	Responses	Code	Skip to Q
Section -1: Socio-Demographic characteristics				
Q101	Age of the mother	(in years) _____		
Q102	Current Marital status	1.Single. 2.Married 3.Divorced 4.separated 5.Widowed.		
Q103	Religion.	1.Muslim 2.Orthodox 3.Protestant. 4.Catholic 99.Others (specify)_____		
Q104	Maternal level of education	1.Can't write and read 2.Can read and write 3.Primary School (1-8) 4.Secondary School (9-10) 5.Preparatory School (11-12) 6.College Education 7.University Education and above		
Q105	Residence	1.Urban 2.Rural		
Q106	Ethnicity	1.Somali 2.Amhara 3.Oromo 4.Tigrai 99.Other (specify)_____		
Q107	Family Monthly income	_____		

Q108	Maternal occupation	1.Governmental employed 2.Self Business 3.House-wife 5.Student 99.Others (specify)_____		
	Section 2: Maternal and Neonatal Information			
Q201	How many times have you been pregnant before?	_____		
Q202	How many times you had delivery?	_____		
Q203	ANC attendance	1.Yes 2.No		**If no skip to Q205**
Q204	Number of times attended ANC?	1.less than four times 2.greater than four times		
Q205	Did you have abortion?	1.Yes 2.No		
Q206	History of burning sensation during urination or UTI during the pregnancy?	1.Yes 2.No		
Q207	Pregnancy induced hypertension or Eclampsia	1.Yes 2.No		
Q208	History of Gestational Diabetes Mellitus	1.Yes 2.No		
Q209	Hemoglobin level (fill from card)	(g/dl) _____		
Q210	HIV status(fill from card)	1.Positive 2.Negative		

		3.Unknown status		
Q211	History of drainage of liquor for more than 18 hours	1.Yes 2.No		
Q212	Were any of your other children born more than 1 month before the expected time?	1.Yes 2.No		
Q213	When was your LMP?	_____		
Q214	Gestation by dates (to the nearest week)	_____		
Q215	Onset of labor	1.Spontaneous 2.Induced labor		
Q216	Mode of delivery	1.SVD 2.C/S 3.Instrumental		
Q217	Pregnancy outcome	1.Singleton 2.Twins or more		
Q218	Sex of the baby	1.Male 2.Female		
Q219	Birth weight	_____grams		
Q220	Congenital abnormality	1.Yes 2.No		

8.2: Amharic Version Questionnaire

ተ.ቁ	ጥያቄዎች	መልሶች	መለያ	ወደጥ.ቁሂድ
ክፍልአንድ- ማህበራዊየስነሕዝብመረጃዎች				

ጥ.ቁ101	የእናትእድሜ	_____አመት		
ጥ.ቁ102	የጋብቻሁኔታ	1. ያላገባ 2. ያገባ 3. የተፋታ 4. ተለያይቶየሚኖር 5. የሞተባት		
ጥ.ቁ103	ሀይማኖት	1. ሙስሊም 2. ኦርቶዶክስ 3. ፕሮቴስታንት 4. ሌላ(ይገለጽ)_____		
ጥ.ቁ104	የእናትየትምርትደረጃ	1. መፃፍናማንበብየማትችል 2. መፃፍናማንበብየምትችል 3. የመጀመሪያደረጃ (1-8) 4. ሁለተኛደረጃ (9-10) 5. መሰናዶና 6. ኮሌጅ 7. ዩንቨርሲቲናከዛበላይ		
ጥ.ቁ105	መኖሪያቦታ	1. ገጠር 2. ከተማ		
ጥ.ቁ106	ጎሳ	1.ሶማሌ 2.አማራ 3.ኦሮሞ 4.ትግራይ 5. ሌላ (ይገለጽ)_____		
ጥ.ቁ107	የቤተሰብየወርገቢ	_____ብር		

ጥ.ቁ108	የእናትስራ	1. የመንግስትተቀጣሪ 2. የግልስራ 3. የቤትእመቤት 4. ተማሪ 5. ሌላ(ይገለጽ)_____ _____		
	ክፍልሁለት-ስለእናትናጨቅላህፃንመረጃ			
ጥ.ቁ201	ከአሁኑውጪለምንያህልጊዜአርግዘሽነበረ	_____		
ጥ.ቁ202	ለምንያህልጊዜወልደሻል?	_____		
ጥ.ቁ203	የእርግዝናክትትልአለሽ	1.አዎ 2.አይ		መልሱአይከሆነጥያቄቁ.204 ይዝለሉት
ጥ.ቁ204	ለምንያህልጊዜ	1.ከአራትጊዜበታች 2. ከአራትጊዜበላይ		
ጥ.ቁ205	የፅንስውርጃአጋጥሞሽያቃል?	1.አዎ 2.አይ		
ጥ.ቁ206	ስትሸኚየማቃጠልስሜትወይምየሽንትፊኛኢንፌክሽንበእርግዝናጊዜገጥሞሽነበረ?	1.አዎ 2.አይ		
ጥ.ቁ207	እርግዝናጋርየተያያዘየደምግፊትነበረሽ	1.አዎ 2.አይ		
ጥ.ቁ208	እርግዝናጋርየተያያዘየስኳርበሽታነበረሽ	1.አዎ 2.አይ		
ጥ.ቁ209	የሄሞግሎቢንመጠን(ከካርድየሚሞላ)	(ግ/ዴሊ) _____		
ጥ.ቁ210	የኤችአይቪሁኔታ (ከካርድየሚሞላ)	1.ፖዘቲቭ 2.ነጌቲቭ 3.የማይታወቅ		
ጥ.ቁ211	ከ18 ሰአትበላይቆይተሽታቂያለሽእንሽሪትውሀፈሶ	1.አዎ 2.አይ		

ጥ.ቁ2 12	ከልጆቸሽመካከልከ1ወርበላይቀድሞየተወለደአለ?	1.አዎ 2.አይ		
ጥ.ቁ2 13	የመጨረሻየወርአበባሽየመጣበትቀን?	_____		
ጥ.ቁ2 14	የእርግዝናውጊዜ (ተቀራራቢውሳምንት)	_____		
ጥ.ቁ2 15	ምጡየተከሰተበትሁኔታ	1.በተፈጥሮ 2. በባለሞያእገዛ		
ጥ.ቁ2 16	የወሊድሁኔታ	1. በምጥ 2. በኦፕሬሽን 3. በመሳሪያ		
ጥ.ቁ2 17	የእርግዝናውውጤት	1.አንድ 2. ሁለት		
ጥ.ቁ2 18	የህፃኑፆታ	1.ወንድ 2. ሴት		
ጥ.ቁ2 19	የህፃኑ/ኗክብደት	_____ግራም		
ጥ.ቁ2 20	ሲወለድየአካልመጉደልነበረ	1.አዎ 2.አይ		

8.3: Af-somali Version Questionnaire
Tirade calamada fomkan_____

Fomkan sualaha ee daraasadka lagu ogaanayo heerka dhalmada wakhtigeda so hormarta iyo waxyabaha laxirira ee hoyyoyinka kudhalaha cusbitalada dawliga ee magalada jigjiga,bariga itobiya,2019

Fomkan laba qaybod ayu kakobanyahay

1. **Xogta kaqaybgalaha**
2. **Xogta hoyada iyo ilmaha**

Fiiro: jawabta kagobaab qaybta jawabaha

T/T	Sualaha	Jawaabaha	Tirade kodhkaah	Ugudub qaybta xigta
Qaybta 1aad: xogta kaqaybgalaha				
101	Da'da hoyada	_____sano		
102	Xalada guurka	1.Magursan 2.Gursaday 3.Wa La Ifuray/Garoob 4.Wan Kalamaqanahay 5.Waa Igadhintay.		
103	Diinta	1.Muslin 2.Orthodhoksi 3.beende 4.katolig/maseexi 99.wax kale (cadee).....		

104	Heerka waxbarashada	1.an waxba qorin waxbana akhriyin 2.wax qorta waxna akhrisa 3.dugsiga hoose 4.dugsiga sare 5.dugsiga diyargarawga jamacada 6.kuliyada 7.jamaacad iyo wax kasareeya		
105	Halkad kunoshahay	1.magalada 2.badiyaha/miyiga		
106	Isirka	1.Somali 2.Amhaxaro 3.Oromo 4.Tigrai 99.wax kale cadee____		
107	Dakhliga bishi sogala qoyskina	_____birr		
108	Shaqada	1.shaqale dawladeed 2.ganacsato 3.guri jog 4.ardayad 99.wax kale cadee_____		
	Qaybta 2aad: xogta hoyada iyo ilmaha			
201	Imisa mar ayad uur qaaday?	_____		
202	Imisa mar ayad umushay/dhashay?	_____		

203	Adeega xananada uurlayda malahayd?	1.haa 2.maya		**Haday jawabtu maya tahay ugudub 205**
204	Imisa mar ayad xanaanada uurlayda boqatay?	1.in kayar afar mar 2.in kabadan afar mar		
205	Waliga ilmo makaasoqubtay?	1.haa 2.maya		
206	Waliga ma isku aragtay kaadido kugubta?	1.haa 2.maya		
207	Ma lahayd dhikarka markad uurka lahayd?	1.haa 2.maya		
208	Ma lahayd xanunka macaanka markad uurka lahayd?	1.haa 2.maya		
209	Tirade dhiga shaybaadhka (ka qor karaka)	(g/dl) ….....		
210	Natijada badhitanka HIVga	1.laga helay 2.laga waayay 3.lama baadhin		
211	Ma isku aragtay biyaha makanka oo mudo 18 saac kabaadan kaasocday?	1.haa 2.maya		
212	Majira ilmo hada kahor bil so hormaray wakhtiga dhalmada ?	1.haa 2.maya		
213	Gormay ahayd marki kugu dambaysay eed dhiiga caadad/xayga isku aragto?	_____		
214	Qiyaasta Da”ada uurka (wiig/todobad ahan)	_____		
215	Xalada foosha	1.iskeed utimaday 2.dawoo ayn kufooshay		

216	Qaabka aad udhashay	1.xubinka taranka 2.qalitaan 3.qalabka caafimadka		
217	Natijada uurka	1.hal ilmo 2.mataano		
218	Jinsiga ilmaha	1.lab 2.dhadig		
219	Heerka culayska ilmaha marku dhashay	_____gram		
220	Malaha wax naafo ah oo ukudhashay ilmuhu	1.haa 2.maya		

8.4: Curriculum Vitae

CURRICULUM VITAE

IBRAHIM ISMAIL MUHUMED

1. PERSONAL PROFILE

- Name: Ibrahim Ismail Muhumed
- Sex: Male
- Date of Birth: May 23, 1992
- Place of Birth: Babile, Oromia
- Marital Status: Single
- Address: Babile
- Nationality: Ethiopian
- Contact Address: Phone No: +251911-315-293 e-mail: ibrahimismail1131@gmail.com

2. EDUCATIONAL BACKGROUND

- 2012-2014-Graduated from Jigjiga University by Midwifery BSc with CGPA of 3.97
- 2007-2009-Graduated from Goba College of Health Science by Clinical Nurse Diploma with GPA of 87%
- 2006-Certified by Grade 10th Completion with CGPA of 3.3
- 2004- Certified by Grade 8th Completion with Percentile of 90%

3. WORK EXPERIENCE

- 2015-2016: Worked at Jigjiga University as Lecturer
- 2010-2011: Worked as Head of <5 OPD at Babile Health Center in East Hararghe Oromia Regional State
- 2011-2012: Worked as Medical Director of Elbahay Health Center in Fafam Zone Somali Regional State

4. TRAININGS

- Jan 2-6,2017: TOT Training On Balanced Scorecard by JJU
- 2015: Training On Higher Diploma Program in Teacher's Education by JJU
- April 21-25,2015: Educational Measurement and Evaluation Training by JJU
- May 6-20,2014: Higher Education Students Summer Training by Federal Ministry of Education Held at Haramaya University
- Dec 24,2012-Jan 8,2013: Basic Computer Skill Training by Somali Regional State Capacity Building Bureau
- June 2-16,2012: Essential Nutrition Action by Federal Ministry of Health
- Jan 5-19,2011: Syndromic Case Management of STIs Training by Ethiopian Medical Association
- March 7-10,2011: Injection Safety and Sharp Waste Management Training by AIDSTAR-One Ethiopia
- Sept 2-9,2011: IMNCI Training by IFHP Held at Harar Dini Hotel

5. SKILLS

- Professional Nursing Skill
- Basic Computer Word, Excel, PowerPoint, Publisher and Access Skill
- Social Communication Skill

6. LANGUAGES

Languages	Speaking	Writing	Reading
• English	Fluent	Excellent	Excellent
• Amharic	Fluent	Excellent	Excellent
• Afaan Oromo	Mother tongue	Excellent	Excellent
• Af-Somali	Fluent	Excellent	Excellent

7. HOBBIES

- Reading Medical Related Documents and Books
- Working in Clinical Settings

8. REFERENCES

1. Mubarek Akmal Lecturer at Goba Health Science College Phone No: +2519-20-90-54-15
2. Abdurahman Kedir Lecturer at JJU Phone No: +2519-10-04-71-30

3. Ahmednasir Abdi Head of Babile Health Bureau Phone No: +2519-15-19-97-32