The utilization of institutional delivery service among mothers of under 2 years old children in Gambella region Ethiopia

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เมนนา โอก๊อก โอจูลู : การใช้บริการสถานบริการคลอดบุตรของมารดาที่มีบุตรอายุต่ำกว่า 2 ปี ในเขตแกมเบลลา ประเทศเอธิโอเปีย. (The utilization of institutional delivery service among mothers of under 2 years old children in Gambella region Ethiopia) อ.ที่ปรึกษาหลัก : อ. ดร.มนทกานติ์ เชื่อมชิต

ความเป็นมา: การคลอดที่บ้านเป็นเรื่องปกติทั่วไปในประเทศแถบใต้ทะเลทรายซาฮาราวมทั้งประเทศเอธิโอเปีย ซึ่งการคลอดที่บ้านนั้นนำไปสู่การเจ็บป่วยและการเสียชีวิตของมารดาและทารก การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่มีผลต่อการใช้บริการสถานบริการคลอดบุตรของมารดาที่มีบุตรอายุต่ำกว่า 2 ปี ในเขตแกมเบลลา ประเทศเอธิโอเปีย

วิธีการศึกษา: เป็นการศึกษาภาคตัดขวาง โดยกลุ่มเป้าหมายคือมารดาที่มีบุตรอายุต่ำกว่า 2 ปี จำนวน 404 คน ในเขตแกมเบลลา ประเทศเอธิโอเปีย โดยใช้วิธีการสุ่มตัวอย่างแบบหลายขั้นตอนและเทคนิคการเลือกกลุ่มตัวอย่างแบบเฉพาะเจาะจง เก็บข้อมูลด้วยการตอบแบบสอบถามด้วยตนเองเพื่อหาปัจจัยที่ส่งผลต่อการใช้บริการสถานบริการในการคลอดบุตร ได้ใช้สถิติเชิงพรรณาและสถิติอ้างอิง โดยใช้การทดสอบไคสแควร์และฟิชเชอร์เอ็กแซ็กเพื่อหาความสัมพันธ์ระหว่างตัวแปร

ผลลัพธ์: ผลการศึกษาพบว่า ผู้มีส่วนร่วมการวิจัย ร้อยละ 69.3 คลอดบุตร ณ สถานบริการสาธารณสุข ในขณะที่ ร้อยละ 26.7 ยังคงคลอดบุตรที่บ้าน ร้อยละ 4 คลอดบุตรบนรถพยาบาลในขณะอยู่บนท้องถนน การศึกษาในครั้งนี้ยังพบว่าอีก มารดากลุ่มเป้าหมายมีความรู้เกี่ยวกับภาวะแทรกแซงในการตั้งครรภ์ในระดับที่ต่ำ (ร้อยละ 65.6) นอกจากนี้ปัจจัยระดับการศึกษาของมารดา เชื้อชาติ/ชาติพันธุ์ ทัศนคติ และการเข้าถึงบริการขนส่งสาธารณะ มีผลต่อการใช้บริการสถานบริการในการคลอดบุตร

สรุป: ผลการวิจัยแสดงให้เห็นถึงปัจจัยต่างๆที่ส่งผลต่อการใช้บริการสถานบริการในการคลอดบุตร ดังนั้นหน่วยงานต่างๆที่เกี่ยวข้องควรส่งเสริมและสนับสนุนให้สังคมตระหนักถึงความสำคัญของการคลอดบุตร ณ สถานบริการสาธารณสุข

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Menna Okok Ojulu : The utilization of institutional delivery service among mothers of under 2 years old children in Gambella region Ethiopia. Advisor: MONTAKARN CHUEMCHIT, Ph.D.

Background: Home delivery is common in sub Saharan states including Ethiopia leading to cause morbidity and mortality of maternal and child health. This study aims to determine factors affecting utilization of institutional delivery among mothers of under two-year-old children in Gambella regional state, Ethiopia

Method: A cross sectional study which approach 404 mothers of under too years old children in Gambella region, western Ethiopia. By using multistage and purposive sampling technique. Data was collected by self-administer questioner to find predisposing, enabling, need factors. Descriptive, Pearson's Chi-square, and Fisher exact were performed to describe and determine the associations.

Result: The study shows that 69.3% of respondent's delivery in the health facility. The mother's delivery the recent child at home was 26.7% and those deliveries on the road and ambulance was 4%. This study disclosed that low level of knowledge on pregnancy complications (65.6%). Education of the mother, ethnicity, attitude, transport accessibility was significantly associated to institutional delivery.

Conclusion: Institutional delivery is affected by predisposing factors, enabling factors, need factors. Especially women's autonomy, age, education, occupation, marital status, road and transportation, gravida knowledge and attitude on pregnancy complication. The health care facilities should give training and promote the society on awareness creation on institutional delivery.

Field of Study: Public Health Student's Signature .....

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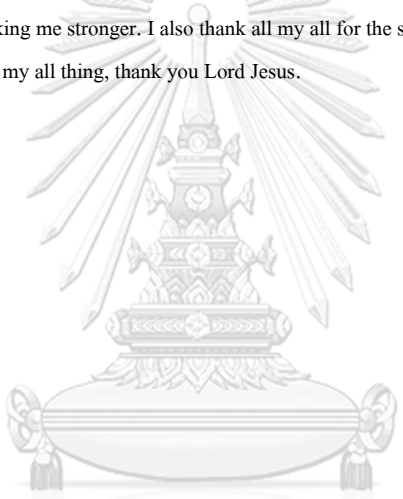

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1 Introduction

1.1 Background and rationale

The Word Health Organization describes maternal mortality is a death occurred with in 42 days after delivery or 6 weeks after, regardless, the time as well as abnormal position of the pregnancy, or serious causes correlated, preexisting infection like direct obstetric death, gestational age, puerperium or complications during delivery etc., while indirect Cause is death occurred by the previous disease or disease occurred during pregnancy, labor or puerperium. The measurement of the maternal death ratio is the total of the maternal mortality divide by 100,000 live birth. Therefore, maternal mortality is a death occured direct or indirectly within 42 days after the delivery of below one year. Possibility of 15 year old mother finally die of the risk (Wetzel, 2018) .

Maternal death remains a universal community well-being importance, level in the age of Sustainable Development Goals (SDG).(WHO, 2016) In various under develop states, plus Ethiopia, obstetric problems that happen throughout pregnancy and parturition stand the primary sources of maternal death between reproductive-aged women.(MC et al., 2010) insufficient maternal maintenance in resource-poor situations plus inadequate use of accessible facilities, such as antenatal care (ANC), added augment the problem of maternal death .(Yaya, Eide, Norheim, & Lindtjørn, 2014) Confirmation has show that providing timely and appropriate ANC leads to a reduction in maternal death.(Langer et al., 2015; WHO, 2016).

Antenatal care supports to a reduction in maternal death, not only through simplifying rapid judgement and organization of serious obstetric problems but also complete choice women who might possibly progress pregnancy difficulties.(Carter & Abroad, 2010; Langer et al., 2015) The ANC interferences accessible through gestation include primary discovery and behavior of obstetric problems such as pre-eclampsia, antepartum hemorrhage, anemia and nutritional problems. unindustrialized countries, ANC also contains the establishment of TT, initial identification and management of

STI, delivery of insecticide-treated bed nets, and prophylaxis treatment for malaria (Gezahegn Tesfaye, 2018).

There is huge change among unindustrialized and industrialized states in terms of maternal healthiness care facility use. Industrialized countries have been originating to deliver ANC to 97% of the expectant mothers and practically all births (99%) are joined by skilled health care specialists. On the opposing, only 52% of expectant mother had four or more ante natal care visits, in unindustrialized countries and only 68% of deliveries were attended by skilled health personel. Sub- Saharan Africa was the region that taking lowest treatment of skilled delivery facility use. Only 53% of births were appeared by skilled health provider (Abebe, Berhane, & Girma, 2012; Carter, 2010; WHO, 2016)

WHO approximation that nearly 580,000 mother of reproductive each year from gestation associated problem, and highest percentage of these losses happen in sub-Saharan Africa. The proportion of maternal death in the district is higher worldwide, attainment stages of 686 per 100,000 live childbirths. Mother having a primary character in raising kids and in the management of family affaires, and their loss due to motherhood correlated reasons is an important societal and individual disaster. (Y. Mekonnen & Mekonnen, 2000)

Reserch demonstrating the high stages of maternal death and illness in unindustrialized nations and survey finding sources of maternal losses consume constantly highlighted the need for ANC and accessibility of skilled provider to support mother during delivery. The prominence of TT vaccine given previous to delivery to decrease newborn death has been recognized as well (4). (**Yaya et al., 2014**)Subsequently a great percentage of maternal and newborn losses happen after the delivery, safe motherhood programs have lately enlarged their stress on the position of postpartum care.

In Ethiopia, the stages of maternal and child death and injury is the greatest in world wide. The maternal death percentage in 2000 was 816 per 100,000 livebirths, and the newborn death percentage was 113 per 1,000 (5).(**Langer et al., 2015**) Single clarification for poor health results amongst mother and youngsters is connected to the non-use of present health care facilities by a large percentage of Ethiopian mother. Earlier educations have obviously established that mother usage to health facilities low in the state. Some trainings in 1990s have shown that about 25% of Ethiopian mothers expected ANC, and less than 10%received professionally-assisted delivery care (6-8)(Carter & Abroad, 2010; Y. Mekonnen & Mekonnen, 2000)

Home delivery is common in sub Saharan states including Ethiopia. for instance, 42% of mothers in Malawi,69% in Nepal,70% in Zaria(Nigeria),74% in Pakistan, and 87.65 in eastern Burma give birth at home. Similarly, 81.8% of women in Dodota district,95% in Tigray, and 87.7% of mothers in Arsi reported those who get delivery at home. (tefera, Alemu, & yohannes, 2012) . There is experimental indication. (Abate, 2016; Hounton et al., 2008) that socio-demographic, reproductive and obstetric issues as preceding involvement of facility use were related with deprived use of ante natal care.

Yet there is an obligation to examine these inspirations in a systematized way classified in one study, to license authorization of the most significant barriers and organizers of ante natal care acceptance. The Andersen and Newman Behavioral Model for health facility use delivers a framework that licenses organized documentation of influences that separate choices to use (or not use) available health care services.(**M. G. Mekonnen, Yalew, Umer, & Melese, 2012**) According to the Anderson and Newman Behavior Model, predisposing factors are individuals socio-cultural appearances of the single that exist prior to their health circumstance, enabling factors reflect the wages or logistics essential to get the facilities, and need factors are the most instant reason of

health facility utilizations and replicate the professed health status of the separable. (Gezahegn Tesfaye, 2018).

It has been described in Gambella region of Ethiopia, there is a great percentage of home delivery. This is a tendency common to various parts that have a common of original or national populace. It has been seen that the small use of maternal care service is frequently due to socio-cultural reasons. When there is a maternal loss due to gestation associated problems, it is understood by others as a bad luck to the family or measured to be an outcome of a corruption that she needed dedicated which has come back as a curse. Investigators have dedicated significant attention to the situation of availability to health services on health result in the country, according to the detective tiny is recognized around the prominence and elements of usage of service delivery in rural area particularly in Gambella Region (Baral, Lyons, Skinner, & Van Teijlingen, 2010; W & Mekonnen, 2004)

Research have establish that care through gestation, distribution, and postpartum time can completely increase the condition of the mother and newborn; though, the presence of gap between provinces on services delivery its lowest in Gambella region (45%) compared to some other advanced regions like Addis Ababa (96.5%), Tigray (56.9 %), Diredawa (56.2) and Harari (50.2)(G. r. h. b. o. Ethiopia, 2016) Hence, leading this education in Gambella region particularly the farthest Region of Dima was crucial. The evidence gained will be usefull for the public and decision makers at the district and regional level in preparation, realizing and estimating several involvements associated to study, results to increase institutional delivery, in farther to decrease maternal injury and death.

Reserch Gap

In addition, the government has tried to ensure that maternal services are free of charge, to reduce financial barrier to facility based delivery care. However, despite the removal of financial barriers, home delivery was still found to be very high. Thus, we need to understand the factors that influence women's decision of not delivering at health.

1.2 Research questions

- What is the rate of institutional delivery among mother in Gambella regional state south west Ethiopia?
- What are predisposing, enabling and needs factors for institutional delivery utilization among mother in Gambella regional state south west Ethiopia?
- Is there any association between predisposing factors, enabling factors, need factors, and institutional delivery utilization among mother in Gambella regional state south west Ethiopia?

1.3 Study objectives

1.3.1 General objective

- To determine factors affecting utilization of institutional delivery among mothers of under two-year-old children in Gambella regional state, Ethiopia.

1.3.2 Specific objectives

- To describe the predisposing factors and their association with institutional delivery service among mothers of under two-year-old children in Gambella regional state, Ethiopia.
- To assess the enabling factors and their association with institutional delivery service among mothers of under two-year-old children in Gambella regional state, Ethiopia.
- To explore the need factors and their association with institutional delivery service among mothers of under two-year-old children in Gambella regional state, Ethiopia.
- To determine the rate of institutional delivery among mothers of under two-year-old children in Gambella regional state, Ethiopia.

1.4 Research hypotheses

- There is an association between predisposing factors and utilization of institutional delivery service among mothers of under two-year-old children in Gambella regional state, Ethiopia.

- There is an association between enabling factors and utilization of institutional delivery service among mothers of under two-year-old children in Gambella regional state, Ethiopia.
- There is an association between needs factors and utilization of institutional delivery service among mothers of under two-year-old children in Gambella regional state, Ethiopia.

1.5 Conceptual framework

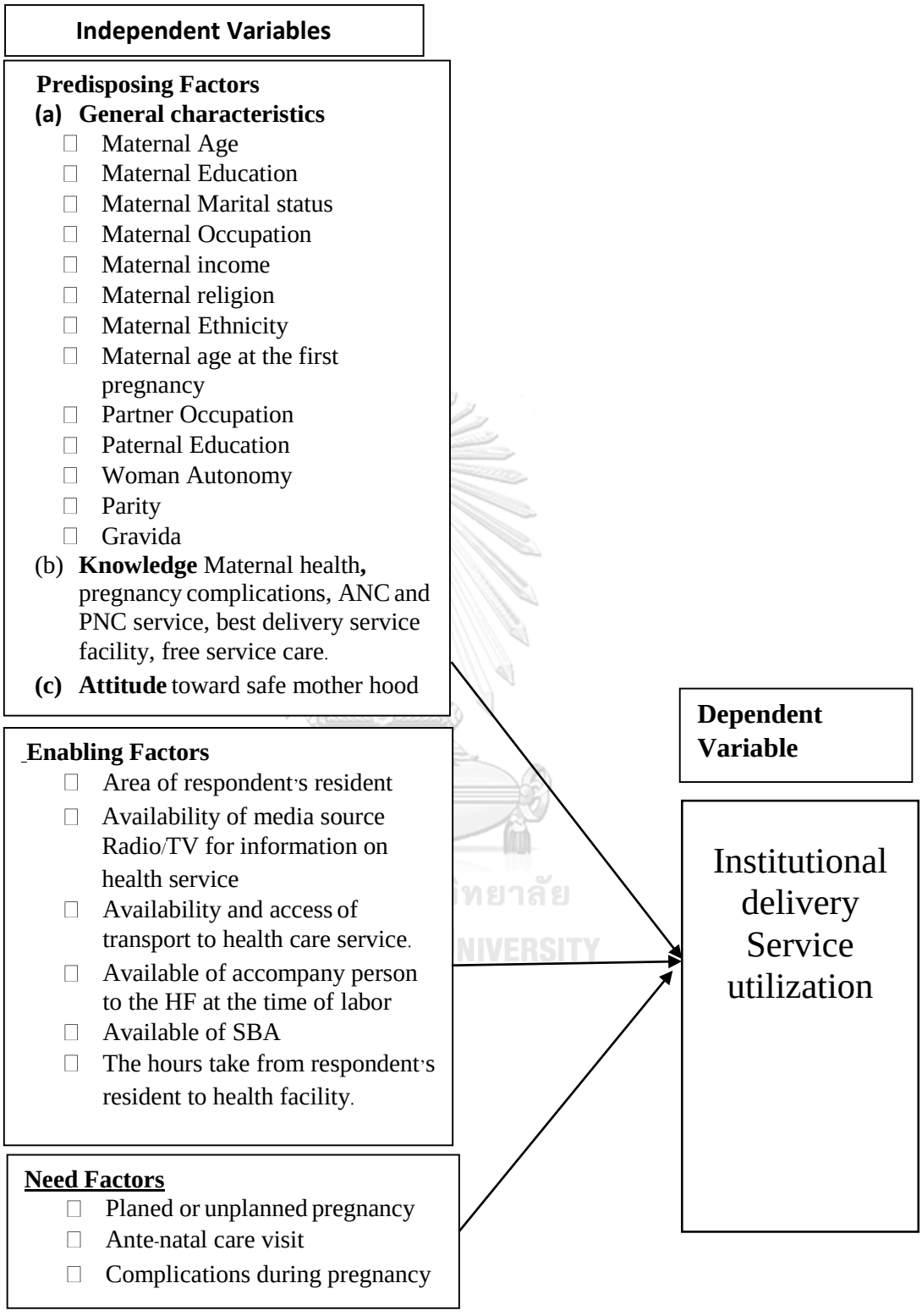


Figure 1 conceptual framework adapted from the Andersens Behavioral model for health service (Anderson, 1995)

1.6 Operational definition

- Age: The age of the respondent.
- Marital status: the mother marital status classified as single; married, widowed or divorce
- Maternal education-the respondent's educational status classified as Illiterate; primary school; secondary school or higher level of education.
- Maternal income: The income of respondent based on respondent's classification describe as Ethiopian Birr (Eth Birr).
- Women's autonomy: -The freedom on decision of maternal health service of the mother.
- Parity: The numbe of children the respondent had.
- Attitudes: the perception of the mother toward the institutional delivery.
- Gravida is the number of all pregnancy.
- Maternal occupation: the work of the mother classified as Farmer non organizational; employee, governmental employee, merchants or house wife.
- Paternal occupational status: the work of the husband classified as farmer, non-govermental employee, governmental employee.
- Paternal Educational level: The educational status of the husband illiterate, primary school, secondary school and higher level of education
- Knowledge on the best place for service delivery, is it at home, health center, health post, hospital.
- Knowledge on pregnancy complications at the time of delivery- discribes as Excessive bleeding, utrine prolapse, placenta abruptio, Eclamsia, don't know.
- Knowledge on pregnancy complication at the time of pregnancy, describe as pre-eclampsia, preterm delivery, Anemia, miscarriage, don't know.
- Knowledge on ANC-Is there any service given during pregnancy describe as Yes or No.

- Knowledge on ANC including the service given on AN, describe as blood preasure, Weight, Fetal heart rate, TT vaccination, Iron supplment and antibiotic injection.
- Knowledge PNC -knowledge on the service given to the mother and baby right after the delivery with in 48 hours.
- Knowledge on PNC - the service given after delivery, describe as management of the mother, new born care, Iron and vit A supplement, contraceptive service, malaria treatment, I don't know.
- Antenatal care: the frequency of ANC visit during pregnancy.
- Institutional delivery service:is a service given to the mothers at the time of delivery at health facility.
- Skilled birth attendant- the well trained health personel that give service delivery to the pregnant mother, it could be mid wife, nurse or doctors.
- Place of residents – the respondent place of living is in urban or rural.
- Possess TV/ Radio- media is the main source of information in less developing countries on maternal and child health.
- Distance of the respondent's resident to health facility by hours or minuts.
- The availability of transport to the health facility.
- The type of transport available to go to health facility- describe as ambulance, bajaj, traditional bed, boat,
- Pregnancy complication describe as a hypertension, pre-eclampsia, and obstructive labor.
- Types of pregnancy (planned or unplanned)- the pregnancy is it based on the willing of both partner or by the mother if she doesn't't have a husband.
- Frequency of ANC visit to health facility, the number of visit to ANC.
- The place of delivery of the respondent-discribes as home, health facility, road, health center, health post or in ambulance.

- The health provider that assisted during delivery- Skilled birth attendant, traditional birth attendant, or others.
- If she got the 24 hours, service delivery or not-discribe as yes or not
- Utilization is availability of service care of the institutional delivery care service management.
- Predisposing factors_The socio-cultural features of people that happen preceding the exposure, Including the socio demographic age, marital statuse, income, ethnicity, religion, occupation, knowledge and the attitude part.
- Enabling factors_ logistical part of procurement attention, what means to access health facilties. Including resedents of the respondents, TV/Radio, access to transport, person accompanied to health facility, availability of SBA.
- Need Factors: the maximum instant reason reason of health facility utilization. including the planned or unplanned pregnancy, ANC visit, Pregnancy complications.

2 LITERATURE REVIEW

2.1 Maternal and Child Health (Global, local, MMR, health consequence)

At the time of universal meeting UN 2015, in New York, UN Secretory-General Ban ki-Moon. During the United Nations General Assembly 2015, in New York, UN Secretary-General Ban Ki-moon begins the universal policy on behalf health of the kids, females and youths, 2016-2030 which was the part of the sustainable development goals. Aims to minimize the maternal death ratio universally 70 per 100,000 live birth. (Langer et al., 2015) In 2013 289,000 maternal deaths, with 210 worldwide MMR per 100,000 live birth. (Abebe, Berhane, & Girma, 2012; Carter, 2010), 99%(286,000) worldwide maternal death happened in middle countries hemorrhage is one of the underline Cause of death during delivery. Though, death record would have been avoidable if it was carried out by some skilled health personnel. So maternal death is being confirmed that it would be reduced if the delivery occurred in health institution. (Fikre & Demissie, 2012).

Universal and countrywide decide on decreasing maternal death and morbidity on behalf of maternal well-being, still no improvement on prevention of maternal death and morbidity ration lower middle income countries. (Sarah Zureick Brown et al., 2013). Therefore, it has been a main issue to improve the health of the pregnant mothers for many years. Nationwide, 289,000 maternal deaths in 2013, which is 210 were maternal death/100,000 live birth. Nevertheless, in lower middle income countries 40% are home deliveries in spite to that 32 million were mothers living in rural area in 2012 ((UN) & York, 2014; Mesay Hailu, 2011)

In sub-Saharan Africa over 4.4 million children, 1.2 million infants and 265,000 mother's die. Which count 13,000 deaths occurred every day and 9 deaths every minutes in sub-Saharan countries. The five major health problems on maternal and child health

in sub-Saharan Africa are pregnancy related and child birth problems, new born disease, childe hood illness, malnourish and HIV/AIDS. Most countries in sub-Saharan Africa are behind in achieving the Millennium Development Goals (MDGs) for maternal and child health by 2015. However, progress in several low-income countries demonstrates that the MDGs could still be attained through immediate strategic investments in selected evidence-based interventions and targeted health systems strengthening. Many countries are at a tipping point and now are the critical time to use local data to set priorities and accelerate action. (Kinney et al., 2010)

In 13 years ago, the international leaders gathered in New York to sign the Millennium Declaration in order to talk about the biggest health problem in world— inadequate universal health, poverty, and inequalities on growth— and create a related goals and met the goals in 2015. The significant aims contain the Millennium Development Goal (MDG) 4 pointing to minimize death of under-five children by two third and MDG 5 Is aiming in decreasing the maternal death with three quarter, this statistic was done in 1990s. Although generally there was improvement, overall global progress, the both MDGS these two MDGs were completely the main goals in every nation.

Presently calculation on nationwide statistics mention the improvement of 75 less developed countries, which is 98% maternal death including under 5 years' children. Among them only 17 close to MDG 4 target to child death while 9 is MDG 5 that target the maternal death. Though, estimation from the Health facility health Metric confirm that 31 states achieve MDGS 5 and 9 states will achieve both. There is evidence that under 5 children death reduced to 6.6 (improbability range 6.3 to 7.0)), 48% decreasing to 12.6 million death(improbably range to 12.4 to 12.9) 1990,inspite to that countries targets to MDG 4-5 still got the high tendency of death statistics but greater possibility

of improvement.(Zulfiqar A. Bhutta & Robert E. Black, 2013). At United Nation conference in 2000 ,147 heads accepted the Millinium declaration.

With the goals of decreasing the maternal death 2/3 in 2015. But still there was no progress on maternal death. In sub-Saharan Africa the is poor accesebility on maternal health care and EmONC. For this reason, 162,000 mothers die yearly at the time of pregnancy. (Gezahegn Tesfaye, 2017)

The maternal health is at risk because of acess to skill birth personel or to utilization of health is very poor.(**Yaya et al., 2014**) In 1994, Thaddeus and Maine suggested an ideal that covers the maternal health issue.They recommended about maternal mortality social resons, rather then the common sources (e.g. hemorrhage, obstructed labour, sepsis). They suggested about the three delays. 1) delay on decision making on health care, 2) delay on access to transport in reaching the health facility,3) delay on the service utilization .(Gezahegn Tesfaye, 2017) The three delays model, intended not only to classify in which of these steps maternal complications and deaths took place, but also to explore ways to prevent deaths by minimizing such delays. (Gezahegn Tesfaye,2017)

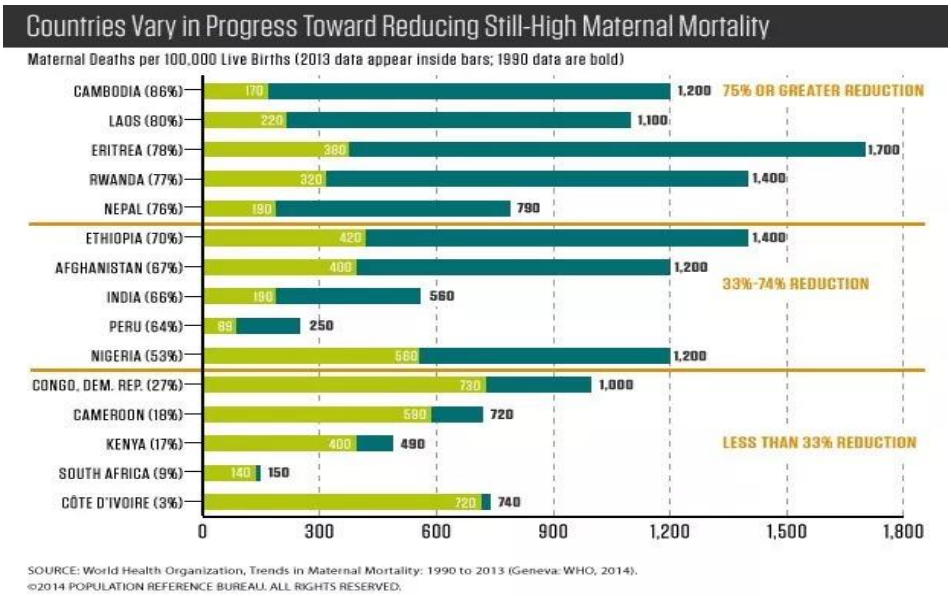


Figure 2 Countries showing high Maternal Mortality Rate

Nation wide defines Maternal mortality as a death occurred at the 42 days of termination. The World Health Organization (WHO) defines womens death/maternal mortality, is a death occurs with in 42 days, end of pregnancy. regardless on pregnancy period and abnormal position of the pregnancy, or from any direct and indirect that is heightened through pregnancy and its treatment. (MC et al., 2010) Therefore, direct deaths is caused by obesteric complication which occurs at the time of pregnancy. Indirect death, is a disease that occurs before the pregnancy or on pregnancy which are not caused by the pregancy but intensified by the pregnancy related complication or managment.

The maternal death rate is the number of maternal mortality / 100,000 live births. Within these broad definitions of maternal mortality, several other distinctions are of value when collecting information about maternal death. There fore, pregnancy related death is a death that occurse at the time of pregnancy within 42 hours. A late maternal mortality defines that a death occurs direct or indirectly by obstetric causes, with in 42 days or less than 1 year of delivery. The lifetime risk is the probability that a 15-year-old will eventually die of a maternal cause based on the existing risk of death for her country and the year. (Wetzel, 2018).

Investigation indicate that increase percent of maternal death in sub-Saharan states and the causes of maternal mortality underline the requirement for ANC service and the accessibility of Skilled birth attendant at the time of labour and delivery. (MC et al., 2010) Furthermore, the significance of Tetanus Toxoid injection decreasing the maternal and neonatal death had been recognized .(Yaya et al., 2014) Subsequently, great percentage of maternal and neonatal mortality happened within the early days of delivery, safe motherhood programs have lately improved their emphasis on the status of postnatal care. (Y. Mekonnen & Mekonnen, 2000)

2.2 Effect of maternal death on surviving children

The reaserch on maternal death in Sweden in19th, Högberg and Broström (WHO, UNICEF, UNFPA, BANK, & UNDP, 2015) Initiate that 68% of infants that born alive by lost mothers didn't survive. though unusual, children <1 year who survive from the death mother, they only have 3% chance of serviving to 5 years. Likewise, children between age of 1 to 5 years the chance of serviving is 13%. Though the outcome in the modern developing world may not be this severe, maternal mortality is expected to be followed by 50% their children below 5 years. ((WHO), 2014-2015) Though, children might die due too the diseases they aquer from their mother.(eg, starvation or AIDS), Which is some die by direct or indirect causes from poor mother precaution.

Nation wide, mothers with low service delivery by skilled birth personel are expected to be 34%, about 45 million of mothers are expected to be deliver at home with out skilled birth personel every year. In develop countries 99% mothers are assisted by skilled birth attendants related with 62% in less developed countries. In five contries plus Ethiopia the proportion its lower than 20%((UN) & York, 2014). Skilled attendance at delivery is one of the key indicators to reveal improvement towards the Millennium Development Goal on improving maternal health. In developing contries with high maternal mortality, the agreement set the goal of 40% delivery assisted by a skilled personel in 2005, with 50% coverage by 2010 and 60% by 2015. Nationally, the aim is to have 80% of all delivery to be assisted by skilled personel by 2005, 85% by 2010 and 90% by 2015,(Zulfiqar A. Bhutta & Robert E. Black, 2013) (Stanton et al, 2006).

2.2.1 MATERNAL MORTALITY IN THE DEVELOPING WORLD

AbouZahr and Royston (Vidler et al., 2016) dispersed an complete statement of the current knowledge of national maternal death less developed and industrialized world. furthermore, to data on nationwide ratio, they open an important collection of lesser and doubtless more severe—and, thus, more consistent—community and health institution

based teachings. The author's calculation of 500,000 maternal death happened every year, though 494,000 happen in unindustrialized nations. The worldwide maternal death percentage is estimated to be 390/100000 live births, 30/100000 in the industrialized world and 450/100000 in the emerging states. Inside the industrialized world, district proportions are as high as 660–700/100000 live births in east, middle, and west Africa, and 650/100,000 live births in south Asia However, the expected percentage in unindestralized country most likely to be over estimated(Zulfiqar A. Bhutta & Robert E. Black, 2013)

Around 4.7 million maternal, child, and youngsters die each year in sub-Saharan Africa: 265,000 maternal mortality occurred because of pregnancy and delivery problems [1];(WHO, 2016) 1,208,000 children who died first month earler,(MC et al., 2010)192,000 children, that persisted first month of life, but lost before riching their 5th birthday. This eastimation of 13,000 deaths per day accounts for half of the world's maternal and child deaths. In addition, an expected 880,000 youngsters are miscarried in sub-Saharan Africa and stay imperceptible strategy.(Kinney et al., 2010)

The United Nation's Millennium Development Goals (MDGs) for maternal and youngster health, furthermost sub-saharan African states in the district are currently doubtful to encounter their MDG goals. (Yaya et al., 2014)Consequently the period is inadequate for achiviment, a serious understanding of why and when the loss happened and the planed, data-based prioritizing of involvements, are vital to quicken improvement. The goal of this study is present condition in sub-Saharan Africa for mothers, children, and youngsters under age 5 years—counting the improvement towards the MDGs for maternal and youngster health, the reason why and where death happend, what acknowledged involvements can be involved to prevent these losses, and current attention of these interferences. All data used in this assessment are from newest

UN records, universal domestic reviews, and peer-reviewed documents where appropriate, which are referenced accordingly.(Kinney et al., 2010)

Maternal Mortality

Maternal death is a subgroup of all mother's death and are associated through gestation and delivery. Two research techniques are used to approximation maternal death in unindesteralized states: the incidental sisterhood technique (Graham et al. 1989) and in a straight line different of the sisterhood method (Rotenberg and Sullivan 1991). In this statement, the direct estimate technique is useful. Age-specific approximations of maternal death from the informed survivorship of sisters for the 2-year period prior the review. These ratios were intended by separating the sum of maternal mortality by mothers-years of experience.

To eliminate the consequence of truncation bias (the greater boundary for appropriateness among females questioned in the study is 49 years), the total percentage for females age 15-49was consistent by the stage supply of study respondents. A maternal death was well-defined as any loss described as happening at the time of pregnancy or delivery, or within two months next to the birth or end of a pregnancy. Approximations maternal death are, so based on the judgement of the passing in relationship to pregnancy.

The outcomes specify that the degree of death related by pregnancy and childbirth is 0.66 maternal losses per 1,000 woman-years of experience, down from 1.1 in the 2011 EDHS. The expected age-specific death proportions show a possible pattern, being generally higher during the peak childbirth ages than in the earlier and mature age groups. Nevertheless, the age-specific pattern should be understood with attentiveness because of the lesser number of events: only 118 maternal mortalities among women of all ages. Maternal mortality signify 25% of all deaths between women age 15-49 during

the 7-year period earlier the examination (118 maternal deaths divided by 473 female deaths).(Ethiopia, 2016) (Tessema et al., 2013)

The reasons of maternal death are multifactorial. An in-depth study on the trends of maternal health in Ethiopia pointed to demographic, behavioral, nutritional, and health services correlated causes are related by deprived maternal health results. However, the significant influences attributable on behalf of the death of mothers are associated to low facility deliveries, poor ability of workers, absence of emergency obstetric services at facilities, and ineffective referral systems for obstetric emergencies.(Berhan & Berhan, 2014; O et al., 2014) By the way, some lessons described incomplete use of significant maternal health services in Ethiopia. The causes for less maternal health services use were associated to range of influences such as women's sociodemographic factors, national issues, public issues, inadequate access to health services, and deprived quality of care in health services. (Tessema et al., 2013)

These involved and interlinked issues cylinder is to be characterized by the three delays model.(M. G. Mekonnen et al., 2012) The decision to seek service care is a (delay 1), delay in reaching the health institution (delay 2), and delay in getting excellence care once at the health facility (delay 3). In distributing through the first delay, the government recognized Health Development Army (HDA) in 2010 with the goal of increasing the attainments of the Health Extension Program(HEP) deeper into communities, educating community ownership and scaling up best practices.(WHO, 2004)

In for the delay two, along with other strategies, the Ethiopian government introduced an innovative free ambulance services in providing ambulances in every rural region that can serve the communities on 24-times, 7-days basis to transfer any woman in labour or experiencing other obstetric difficulties to the appropriate health facility. Moreover, Maternal Death Surveillance and Response (MDSR) and Respectful Maternity Care (RMC)was threw to mitigate the experiments owing from delay in

getting quality of maternal health services.(Sarah ZureickBrown et al., 2013; WHO et al., 2015) As part of the Health Sector Transformation Plan(HSTP), Ethiopia aims to reduce MMR to 177 losses per 100,000 LB in 2020.(WHO et al., 2015)

Furthermore, in the past-MDG era, the Sustainable Development Goal (SDG)puts an ambitious target of achieving MMR of 70 per100,000 live births (LB) in 2030 [34]. ((UN) & York, 2014)Therefore, in order to track future goals and evaluate the effect of administration originalities, considerate the previous and recent actions and reasons of maternal mortality in Ethiopia is dynamic.his training found that mortality due to HIV associated causes was relatively steady with a lesser decline, overtime. This reduction may have resulted from the introduction of the Prevention of Mother-To-Child Trans-mission (PMTCT) of HIV/AIDS services since 2001.(Daniels, Ahenkan, & Poku, 2013) A training conducted in Ethiopia also suggested that there was a remarkable improvement in terms of potential coverage of PMTCT services between 2006 and 2010. (Y. Mekonnen & Mekonnen, 2000)

2.3 Health care system in Ethiopia (i.e. Coverage and access to health service, services are. delivered through community and primary level?)

Over the previous era, Ethiopia has recognized prominent movement in a total population health result. For instance, child mortality per 1,000 live births has fallen from 166 in 2000 to 88 in 2011 and maternal death ratio have declined from 871 to 676 per 100,000 live births. These changes have remained attended by a quick growth of health-care organization at all levels. According to Ethiopia's Federal Ministry of Health (FMoH, 2011), there has been an 18-fold increase in the number of health posts from 833 in 2000 to 15,095 in 2011 and a sevenfold increase (356–2,660) in the number of health centers over the same period. Consequently, it is estimated that primary health care coverage, defined as village-level access to a health post, has increased from 51% in 2000 to 92% in 2011.

Although these progresses in the source of health care and rises in the use of some specific facilities, general utilization rates remain low. For example, according to the Ethiopian Demographic and Well-being Studies, outpatient health care utilization per capital per year has increased only marginally from 0.27 visits in 2000 to 0.3 visits in 2011. The little utilization rates are complemented by a high confidence on out-of-pocket (OOP) spending to finance health care. The FMoH (2010) estimates that the three main sources of health-care financing in Ethiopia are local and international donors (40%), out-of-pocket (OOP) spending by health-care users (37%), and central and local governments (21%). The remainder (about 2%) is covered by employer and other private insurance schemes.

Subsequently the late 1990s, Community-Based Health Coverage schemes (CBHI) which contain achievable clients in determining scheme assistances and arrangement management have been realized in numerous undeveloped countries (Dekker & Wilms, 2010; Ju¨tting, 2004). 1 Conforming the roll-out of these schemes, exercises investigative several parts and properties of CBHI have increased, aiming mostly on supply of utilization, coverage acceptance, social exclusion, utilization of healthcare, and financial protection. Early reviews of this body of work are provided by Jakab and Krishnan (2001) and Preker, Carrin, Dror, Jakab, Hsiao, and Arhin-Tenkorang (2002) The Nationwide well-being program emphasize core principles of democratization and decentralization of the Health care system of Ethiopia. Preventive, promotion and curative components of health services (WHO, 2016) and encouraging private and nongovernmental organization participation in the health sector.

The healthiness sector follows a 5-year rolling plan as part of the nationwide growth strategy. Since 1997–1998, three successive stages have been finished and presently the nation is employing the fourth comprehensive Health Sector Development Program (HSDP). The health system has had a giant transformation over the past two

decades, with a dramatically developed probable admission to repair over the enhanced growth of health facilities. An inventive community-level health service, the Health Extension Program was familiarized by exercise and organizing female health extension workers and institutionalizing community health care at the health post level. Over the past decade, the Government of Ethiopia has given primacy to the expansion of health services, particularly those of primary health care.

In order to enlarge complete obstetric care facilities additional to the community level, the Government is scheduling an enhanced growth of primary hospitals in each woreda. Health care facility development has enhanced physical access to health facilities with an emphasis on primary health care units, subsequent in a possible health service coverage assessed at 92.2%. Generally, facility coverage has increased over time, although the performance is not uniform cross plans. Owing to economic, sociocultural and geographic issues, health care utilization is still little, with a 0.36% utilization proportion (WHO, 2016).

printed and unpublished works, Jakab and Krishnan (2001) accomplish that there is considerable indication that community health financing schemes are able to mobilize resources to finance healthcare needs, and that such schemes are effective in terms of reaching lower-income groups, although the lowest-income groups are regularly excluded. As contrasting to these two account reviews, Ekman (2004) delivers a systematic review of the literature based on 36 studies conducted during 1980–2002. Echoing previous findings, Ekman (2004) concludes that while such schemes do provide financial protection for low-income groups, the degree of the effect, is small and excluded from registration.(MEBRATIE, SPARROW, YILMA, ALEMU, & BEDI, 2015)

Currently, based on a regular assessment of 46 papers issued during 1995–2012, Mebratie, Sparrow, Alemu, and Bedi (2013) inspect (among other aspects) the degree of societal prohibiting and opposing assortment in CBHI systems. They accomplish that a mainstream of documents (61%, 11 out of 18) find statistically important indication of prohibiting of the final income groups from CBHI schemes. Uneven while such families grow into memberships, they have a tendency to use healthcare facilities fewer intensively as related to greater income groups, hypothetically due to their incapability to manage to pay for co-payments and other correlated expenses (such as transport and predictable income). (MEBRATIE et al., 2015)

They also account that 67% (six out of nine) of the trainings find indication that characters pain from chronic wellbeing conditions, a substitute for confrontational collection, are more possible to join CBHI schemes as related to persons in good health. In July 2011, the Government of Ethiopia propelled a pilot Community-Based Health Insurance (CBHI) scheme, with the goal of increasing admission to health care and decreasing the problem of OOP disbursement. The system, which provides to country side houses and city informal sector workers, was rolled out in 13 districts located in four main regions (Tigray, Amhara, Oromiya, and SNNPR) of the country. (MEBRATIE et al., 2015)

2.4 ANC in the context of Ethiopia (i.e. Accessibility and Barrier to ANC)

A qualified repair providing to women during pregnancy is called antenatal care. Antenatal care plays a great part in the enhancement of maternal health. In Ethiopia and other sub-Saharan African countries, antenatal care use among pregnant women is low. Furthermore, the pregnant women in Ethiopia and other unindustrialized countries have a tendency to delay their first antenatal care visit into the later months of pregnancy. Approximately, two thirds of the pregnant women in Ethiopia made their first antenatal care visit, late in their pregnancy.

The women's with no education, husband's with no education, women's of older age, rural residence, having previous deliveries, unintended pregnancy, women's joblessness, low monthly income, absence of knowledge about antenatal care, lack of women's Autonomy, no husband participation, and not facing complications at pregnancy, women associated with lower antenatal care visit. National wide efforts directing the main underwriting issues would be established to alleviate women's late antenatal care utilization in the country.

Some trainings have examined issues touching delayed attending of ANC in Ethiopia. Nevertheless, nobody of these trainings have scientifically revised the influences to show their overall pooled effect on delayed initiation of ANC at the nationwide level. Furthermore, there were irregularities in ascribing the effect of the issues on dawn introduction of ANC across different trainings. For example, here remain located unrelated outcomes on the effect of maternal education, maternal age, place of residence, maternal occupation, marital status, husband's education, previous experience of using ANC, and history of abortion, on delayed initiation of ANC among many other factors. Therefore, indicating a combined influence on delayed initiation of ANC was warranted.(Gezahegn Tesfaye, 2017)

Former systematized reviews showed in unindustrialized and industrialized countries have largely revised indication on the capability of the use of ANC and its associated issues. In definite, the reviews enclosed larger geographic regions and late unsuccessful to reproduce republic definite conditions. Moreover, these assessments did not centre on delayed origination of ANC as a key result of interest. The impartial of this review is to analytically ascertain and synthesize existing evidence to understand the level of delayed initiation of ANC and associated factors among reproductive aged women in Ethiopia. (Gezahegn Tesfaye, 2017)

2.4.1 Maternal Care

Appropriate care through pregnancy and delivery is important for the well-being of both the mother and the child. In the 2016 EDHS, mother who had given birth in the 5 years preceding the survey were asked a number of questions about maternal care. Women were requested whether they had attained antenatal care during the pregnancy, for their most recent live birth in the 5 years earlier study and whether they had established tetanus toxoid injections while pregnant. For each live birth over the same period, mothers were also asked what type of assistance they received at the time of delivery. Lastly, mother who had a live birth in the 2 years before the review were requested if they established a post-delivery inspection within 2 days of delivery.(Gud & MPH, 2018)

2.4.2 Antenatal Care

Antenatal care (ANC) from a skilled attaindant is significant to screen gravidity, and reduction morbidity and mortality threats for the mother and child through pregnancy, delivery, and the postnatal period.

2.4.3 Tetanus Toxoid Vaccination

Tetanus toxoid injections are given at the time of pregnancy to stop neonatal tetanus, a main reason of primary infant deaths in many unindustrialized countries, frequently due to failure to perceive clean procedures through delivery. The study shows that 49 percent of mother established adequate prescriptions of tetanus toxoid to protect their last birth against neonatal tetanus. The proportion of mother whose last birth was threatened from tetanus is higher in city than country side regions (72 percent vs. 46 percent), and ranges from 30 percent in Afar to 82 percent in Addis Ababa. The proportion advances with mothers schooling and prosperity. 41 percent of mothers with out education account, their last live birth was threatened against neonatal tetanus compared to 83% of women with more than a secondary education. The proportion of women whose last live birth was protected against tetanus was related to that report in the 2011 EDHS 48%.(Gud & MPH, 2018)

2.4.4 Delivery Care

Admittance to suitable medical care and sanitary conditions at the period of delivery, can decrease the risk of problems and contaminations that could lead to death or serious illness for the Women, children, or both (Van Lerberghe and De Brouwere 2001; WHO 2006). Somewhat over 1 in 4 live births in the 5 years earlier the review were delivered by a skilled personel 28% or in a health sectore 26%. The percentage of live births delivered by a skilled personel continued almost unaffected for 5 years in 2000, but enlarged significantly in 2005; from 6 % in the 2000 and 2005 EDHS, to 10 % in 2011 EDHS, and reached 28% in 2016 EDHS. (Gud & MPH, 2018)

A comparable tendency is detected for the proportion of live births that happened in a health sector; it improved from 5% in 2000 plus 2005 EDHS reviews, to 10 %in 2011 EDHS, plus to 26% in 2016 EDHS. 8% births of town mothers were supported by a skilled personel plus 79% were delivered at health institution, as associated with 21% plus 20%, correspondingly, delivery of the rural mothers. Afar had the lowermost proportion of mothers whose deliveries were delivered by a skilled provider or delivered in a health facility 16% and 15%, respectively, while Addis Ababa has the highest percentages for both indicators97%. Mothers' educational status is highly correlated with whether their deliveries are assisted by a skilled provider and whether they are delivered in health sector. For example, 17%of births from women with out education were supported by a skilled personel and 16 % were delivered in a health institutional, as related with 93% and 92 %, correspondingly, of childbirths by mothers of secondary education. A comparable association is detected with household treasure.

2.5 Postnatal Care for the Mother

A huge percentage of maternal and newborn deaths occur through the initial 48 hours after distribution. Therefore, rapid postnatal care (PNC) for equally the mother and the youth is essential to delight any problems ascending since the distribution, as well

as to deliver the mother by significant information of hers and her babys care after delivery. Safe motherhood agendas mention that all females accept a checked of their well-being inside 2 days after delivery.

To evaluate the level of postpartum care usage, the mother was asked, for their last delivery at 2 years earlier of the study, this mothers established inspection after delivery and the timing of the first examination. As exposed in percent of mothers described having recognized a post partum care checkup in the first 2 days after birth. The percentage the mothers getting a postnatal checkup within 2 days of delivery, is greater in town regions than in countryside ranges, lowest in Oromia and highest in Addis Ababa, and rises by mothers education and household treasure.(Gud & MPH, 2018)

2.5.1 Maternal care indicators

Amongst mothers age 15-49 who had a live birth in the 5 years earlier the review, proportion who established antenatal care from a skilled personel for the previous live birth, proportion with four or more ante natal care visits for the last live birth, and proportion whose last live birth was threatened beside newborn tetanus; between entirely live births in 5 years before the study, proportion delivered by a skilled personel and proportion delivered in a health institution; and amongst mothers age 15-49 who had a live birth in the 2 years earlier the study, proportion who established a postpartum inspection in the first 2 days after the last live birth, by background characteristics, Ethiopia 2016.(Ethiopia, 2016; Gud & MPH, 2018)

Maternal mortality is main community health problem in Ethiopia. The maternal death ratio 412/100,000 live births- is among the highest in the world. (WHO, 2016) Antenatal care (ANC) is one of the approaches to encourage the approval of obstetric care services and improve maternal health. ANC with its essential values of health promotion & disease inhibition is even more vital in unindustrialized nations where management of obstetric complications is challenging because of late

presentation of patients and health facility constraints. There are few systematic reviews done on factors affecting ANC utilization in developing countries. The available studies indicate that the predominant factors vary in different contexts. (MC et al., 2010) Hence context specific reviews are important for appropriate policy and program recommendations. (Gud & MPH, 2018)

Generally, there is significant unmet need for maternal health care in Ethiopia and numerous studies reported low ANC utilization. The most recent EDHS (2016) reported ANC coverage of 62%. (MC et al., 2010) Although there are numerous studies addressing determinants of ANC utilization; to the best of our knowledge there are no systematic reviews in Ethiopia. Research evidences of utilization tailored to a geographic context are central to guide efforts focused on improving the uptake and quality of prenatal care.(Gud & MPH, 2018)

Understanding which factors are most important to ANC utilization will help in devising evidence based effective policies and interventions. It will also guide health organizations to target specific/underprivileged groups and improve quality of services. This will ultimately lead to the achievement of the goals of ANC and ensure customer satisfaction. In light of the above facts, a review of the literature on factors influencing the utilization of ANC in Ethiopia was done with the objectives of identifying context specific factors which will help to devise effective policies/interventions and point out the existing knowledge gap.(Gud & MPH, 2018)

2.6 Institutional Delivery Service (i.e. Accessibility and Barrier to Institutional Delivery Service)

Health facility delivery service utilization is one of the greatest significant involvements to decrease maternal mortality. In this study the influences that underline health facility delivery service utilization was examined. Health facility delivery service utilization was strongminded by past of still birth, total of ante natal care visit,

purposeful mass media and distance to neighboring health institution. Consequently, alarmed groups must give their part to increase health facility delivery service use in the education area and attack adaptable danger issues that move use of the facility. In this study the equal of established delivery facility use is one in every three mothers which is still low likened to direction creativities which is growing to 60% the percentage of childbirths attended by skilled health provider both in the respondent resedent or at the health institution.

Still birth in the past, ante natal care visit, accessibility of useful mass media and The respondent resident from the health sector were found to be suggestively related with health sector delivery. According to the results the following references are progressed: Focused ante natal care and mother waiting centers for delivery service need to be strengthened. Transference and Ambulance facilities essential to be accessible and available so that womens can access the health institution in a little period of time. Consciousness formation requirements to be complete about birth preparation strategy for pregnant women through their ante natal care visit. Skilled birth personel in the region must follow "mother friendly approach" in providing that maternal health facilities and essential to produce chances womens to segment involvements about using health institutions for delivery facility (Mamba, Muula, & Stones,2017).

Mothers health, and in specific access to skilled birth personel, is extremely stratified by poverty and other societal causes of health. (Carter & Abroad, 2010) In 1994, Thaddeus and Maine planned a model to describe the public reasons of maternal mortality, outside the existence medicinal sources (e.g. hemorrhage, obstructed labour, sepsis). They defined how maternal deaths happened mainly due to three kinds of delays in retrieving health-care services that are talented to contract with obstetric problem: 1) delay when determining to pursue suitable medicinal care, 2) delay when attainment suitable obstetric service, and 3) delay when receiving adequate care once the facility is

reached. 'The three delays model' directed not only to categorize in which of these steps maternal problems and deaths took place, but also
to travel means to avoid deaths by decreasing such delays.(Gezahegn Tesfaye, 2017)

Practically 20 years later, indication expressions that these same three delays are still causal to maternal mortality in low-income countries. (Y. Mekonnen & Mekonnen, 2000) Deprived birth preparation, geographic unreachability,facility delivery not assumed as essential, family inspiration on the executive procedure, unmet requirements for community-based care in obstetric emergencies and fright of hospital locations are communal issues connected to the first type of delay (M et al., 2007; NB1 & YH., 2013) Late and/or poor-quality transfer, transportation not accessible and insufficient results by partner/families have been related with the second type of delay .(Hounton et al., 2008; NB1 & YH., 2013) In conclusion, absence of materials and operate, deprived superiority of care and various delays due to second recommendations have been described in the literature as part of the third type of delay .(NB1 & YH., 2013) To encourage maternal health and to avoid avoidable pain and deaths, it is significant to identify and appreciate the issues complicated in these delays.(Gezahegn Tesfaye, 2017)

In Ethiopia, the stages of mother and child death and illness are the highest the world. The maternal death rate in 2000 was 816 per 100,000 livebirths, and the child death proportion was 113 per 1,000. (Langer et al., 2015) One clarification for poor health results amongst mother and children is connected to the non-utilization of current healthcare services by a generous percentage of Ethiopian mothers. Preceding trainings have obviously verified that the usage of accessible maternal well-being facilities is very low in the state. Numerous trainings in the 1990s have revealed that around 25% of Ethiopian mothers received antenatal care, and less but 10 percent recived delivery service from skilled birth professional. ((Y. Mekonnen & Mekonnen, 2000)

Maternal and neonatal morbidity and mortality has been proven to be decreased by births that have taken place in a health care institution (Fikre & Demissie, 2012). For the past few years, the Ethiopian government has been introducing different strategies to in enhance the institutional delivery and reduced mother's death. The most important is the development of health services and institutions that provide basic delivery service (vaginal delivery for mother with no pregnancy complications). This has been achieved by providing services that are more physically accessible, and ensuring that all maternal service plus service delivery and neonatal serious care (if present) in the community sector are free. Although geographically, these services are irregular, it is assessed that practically many people are living at least 5 kilometers away from health institutiona. (WHO, 2016)

In addition, the government has tried to ensure that maternal services are free of charge, to reduce financial barrier to facility based delivery care. However, despite the removal of financial barriers, home delivery was still found to be very high. Thus, we need to understand the causes that stop mothers decide to delivery at health institution. (C. S. A. o. Ethiopia, 2007.

The Health ministry of Ethiopia has been collaborating with Bureaus of Health in the region in order to address the issues about equalities in access to various health facilities concerning maternal and child. It has been trying to guarantee general health treatment in regards to maternal and child health by addressing all areas of health service, including collection of data which helps in covering the health expectations of women (G. o. Ethiopia, 2011; G. r. h. b. o.

Ethiopia, 2016; WHO, 2003, 2004, 2016). But in spite of these efforts the rate of institutionalized birth has not risen significantly. In 2011, Ethiopia had an MMR of 676 per 100,00, which can be attributed to the very low proportion of institutional deliveries (G. o. Ethiopia, 2011). It has been proven that timely management and treatment of

obstetrical complications (including timely referral) can reduce maternal death (WHO, 2016)

Health sector delivery means: delivery of a preganant mother by skilled health personel at health facility like health center, public health sectore and private health sector. Appropriate medicinal care and opening sterile situations through birth will minimize the risk of pregnancy problem, the contamination that occurce at time of delivery that could cause death or sickness on mothers and new born. Worldwide, attention of skilled attending at birth was assessed to have touched 73% in 2013. Nevertheless, extra than 40% of deliveries in African and South-East Asia District stayed not appeared by capable well-being profession, and even gaps amongst states associated with changes in socio economic status persevering. In Ethiopia, there is only 26.2% of womens who has access to skilled assistant (G. r. h. b. o. Ethiopia, 2016; WHO, 2016).

This shows that in most ethnic areas in the country, including Gambella, maternal health related issues are not just related to access of health facility, instead there is a huge role of socio- cultural factors. The plan is a road map for the post- 2015 plan as defined by the `SDG to finish all avoidable losses of mothers, child and youngsters as a part of the global strategy and goal of ending avoidable Maternal death. Federal Government of Ethiopia Ministry of health is working with Regional States. maternal, and newborn health care service, ensuring universal health coverage for comprehensive reproductive, maternal and newborn health care addressing all causes of mortality, reproductive and morbidities, and related disabilities, and strengthening health systems to collect high quality data in order to respond to the needs and priorities of women and girls, and ensuring accountability in order to improve quality of care and despite all those government effort low institutional child delivery remain challenge in Gambella Region (G. o. Ethiopia, 2011; G. r. h. b. o. Ethiopia, 2016; WHO, 2003, 2004, 2016).

Maternal loss widespread is a serious problem which high proportions are working hotly to speech. In Gambella region, in specific low health institutional delivery observed in the report for many years (G. r. h. b. o. Ethiopia, 2016), and highest, maternal death seem to be related as a main socio-cultural problem and utmost indigenous ethnic groups.

A woman who dies as a outcome of pregnancy correlated loss is frequently seen by others as a bad luck household or a curse meted to them as a outcome of serious criminality that they might have dedicated, This indicates, maternal death is not only a developing problematic but also a cultural influence matter and greatest is everybody worry (Mwifadhi Mrisho1 et al., 2007), in the Gambella Regional state, health facilities are relatively can be accessible, costs of health services related to pregnant and delivery are generally covered by government.

The key trials that mother face when looking for maternal well-being facilities were obviously clarified in the three delays model. (Gezahegn Tesfaye, 2017) This model defined the barriers utilization of maternal health facilities at three organized stages before the occurrence of maternal death. At the primary stage, the household or public level, mothers may be delayed from seeking ANC due to influences such as the little community status of maternal in related to women autonomy, poor responsiveness of gravidity or confinement problems, earlier deprived knowledge of care, traditional or community performs through pregnancy or delivery, acceptance of maternal mortality as usual and economic dependency. In Ethiopia, there is enormous gap in the equal of salary amongst females and males particularly in countryside of Ethiopia, and females are less allowed to access and governor the family incomes. (Gezahegn Tesfaye, 2017)

This could impact their ability to make choices on use of maternal care. Furthermore, the economic load related transport to and from the capability and the prices experienced for the maternal care itself strongly reduced the acceptance of the care. (HAUB, 2015) In the second stage, there may be a delay in attainment of health

facility which might be due to distance, unattainability of organization (road or transportation) or difficult territory. The third stage of delay (delay in getting acceptable care) might be related to absence of, or inefficiently skilled health personel, and inaccessibility of medicinal goods and equipment.

2.7 Andersen's Behavioral Model of Healthcare Utilization

The determination of this agenda is to determine situations that also simplify or delay utilization. The aim being, to grow an interactive perfect that delivers measures of access to medicinal care. The agenda was primary established in the 1960s and has subsequently departed through four stages. Established in the 1990s, the agenda lower signifies the quarter stage.

Individual accessability to uitilization and delivery care is reflected as a three factors of characterstics.

1) Predisposing Factors: The socio-cultural features of people that happen preceding to their infection.

- Social Structure: Schooling, job, ethnicity, community linkages, public communications, and values
- Health Beliefs: Attitudes, values, and knowledge that society belives regarding and headed for the health care organization
- Demographic: Age and Sex,marital status

2) Enabling Factors: The logistical parts of procurement attention.

- Personal/Family: The means and recognize by what means to access health facilities, salary, health insurance, a regular basis of care, transportable, degree and value of societal relations
- Community: Accessible health staffs and services, and coming up time
- Possible additions: Genetic issues and mental appearances

3) Need Factors: The maximum instant reason of health facility utilization, from practical and health complications that produce the requirement for health care facilities. "Apparent need will improved help to recognize care-seeking and obedience

to a medicinal treatment, though estimated need will be more closely related to the caring and quantity of treatment that will be providing after a persevering has accessible to a medicinal care personel." (Andersen, 1995)

- Perceived: "How people view their own universal health and beneficial government, as well as how they involvement indicators of infection, pain, and doubts about their health and whether or not they judge their complications to be of adequate position and greatness to seek qualified service." (Andersen, 1995)(Behav, 1995)
- Evaluated: "Represents professional judgment about people's health status and their need for medical care." (Andersen, 1995) (Behav, 1995)

2.8 Review of research artcle

Maternal health care in Ethiopia

With a maternal death percentage of 676 per 100,000 live births and 19,000 maternal losses yearly, Ethiopia is a main provider to the universal loss toll of Women [13]. (Vidler et al., 2016) The main instant sources of maternal losses in Ethiopia are contaminations/sepsis (47.1%), haemorrhage (29.4%), severe pre-eclampsia/eclampsia (7.6%), obstructed/prolonged labour and ruptured uterus (2.9%), with difficulties from hazardous abortion secretarial for the residual 2.9% of maternal losses. The unplanned obstetric sources are anaemia, HIV/AIDS and cardiovascular diseases and account for 10% of maternal Mortality. (MoH, 2011) The main source horizontal limitations that donate to maternal loss are shortages of skilled midwives, weak recommendation classifications at health centres, and insufficient accessibility of undeveloped and complete emergency obstetric and newborn care equipment. On the request side, national and social averages, distances to operational health centres and economic barriers are deliberated main restrictions; this is related in other developing countries. (Gebrehiwot, Sebastian, Edin, & Goicolea, 2014)

In reaction to the measured improvement on undertaking maternal death, the Ethiopian Ministry of Health launched a community-based health-care system in 2003, the Health Extension Programme (HEP), imbedded in a main health-care approach. The HEP is planned to increase justifiable access for preventive indispensable health involvements complete community-based health facilities and to complete important uncomplicated health-care coverage, by distribution of health post to serve an area of approximately 3,000 to 5,000 people – a kebele, the lowermost organizational part. Respectively kebele (districts) has one health post with two health extension workers (HEWs), after accomplishment of one year's training, are employed to deliver preventive, basic curative health services to the public and transport out activities associated to health promotion. The Health Extention Program HEP has been employed through Ethiopia, with more than 33,000 HEWs previously qualified and organized subsequently 2004. (Gebrehiwot et al., 2014)

Significant maternal and children health services are free of charge through the health-care financing strategy; furthermore, the Federal Ministry of Health (FMOH) has reformed a three-tier health-care delivery system: (1) the district primary hospitals (to cover 60,000–100,000 people), (2) health centres (1/15,000–25,000 inhabitants) and 3) satellite health posts (1/3,000–5,000 population). All three levels are invented to be linked to each additional by an appointment system (Gebrehiwot et al., 2014)

The Health Extenation Workers deliver health-care facilities both at the health post and in the community, with a tough effort on constant defensive health movements and improved health compassion; they deliver ANC, and might join deliveries, though every time a problem appears, they have to discuss to the health centre, which is frequently a walk of two to three hours. They are also in care of controlling intended community health workers who are likely to sustenance health teaching activities in the societies. (Joharifard et al., 2012) (Berhan & Berhan, 2014) HEWs are responsible to the area

health office for all the responsibilities of the HEP and they are also infrequently managed and qualified by midwives or nurses concerning maternal health actions. Most of the health centres in rural areas lack midwives because they work mainly at urban health centres and hospitals, and are the ones responsible for assisting women during labour. (Gebrehiwot et al., 2014)

In spite of the durable hard work in dispersion the Health Extention program throughout the nation, in terms of maternal health, worldwide right of entry to services remains limited, predominantly while it originates to skilled delivery attending. In 2009, a review showed in four regions of Ethiopia reported that only 9% of women were giving birth at institutions. (Berhan & Berhan, 2014) Other current trainings in diverse districts of the state sustained the result that there is very little progress in taking more institutional deliveries. Our preceding study travelling women's standpoints on maternal health-care facilities in Tigray presented indication that mothers expression a numeral of problems in editing medicinal care facilities during delivery, counting the dominance of ageing mother, sociocultural principles, undefined transport and lack of faith in the excellence of medicinal facilities. (Gebrehiwot et al., 2014)

Health Extention Worker and midwives are key human resources in the maternal health constituent of the Health Extention Program. Their vision into what is or is not working and the trials they expression through delivery care at health services would be measured extremely related to recognize the small amount of recognized deliveries in the district and the state generally. Through service since 'the three delays' framework, this education discovers health facility providers' sensitivities of organizers and barriers to the use of institutional delivery in Tigray, a northern state of Ethiopia.

The training was showed from September 2010 to January 2011 in two rural regions of the Tigray region, Ganta-afeshum and Kilte-awlaelo. These regions are situated in the eastern zone of the region, 120 and 45 kilometres individually since the

district capital Mekelle. In 2007, the total inhabitants of the two regions was projected to be 188,384 populations. (Gebrehiwot et al., 2014)

The two districts involved in this training involve 29 health supports with nearly 58 Health Extention Workers, 10 health centres and two hospitals. Five ambulances were accessible in the regions, two in Ganta-afeshum and three in Kilte-awlaelo. Data after the Tigray Health Bureau have expected the antenatal care coverage in these two regions to be 53% and 80%, associated to the skilled (28% and 13% individually) and clean/safe delivery attendance (21% and 9.5% correspondingly) Aimed at this interview study, equally Health Extention Workers and midwives were purposively designated with the aim of without informers with diverse exercise circumstances. All of them had at smallest two years' work skill at health-care services. (Gebrehiwot, Sebastian, Edin, & Goicolea, 2014)

3 RESEARCH METHODOLOGY

3.1 Research Design

This is a quantitative, cross sectional study through using a structured questionnaire

3.2 Study area and period

Ethiopia was one of the most poverty stage world wide, its measured to be one of the less developed countrys in the globe. Nevertheless, its African continent with a rich of culture and heritage. Surrounded by Kenya, South Sudan, Sudan, Djibouti, Eritrea, and Somalia, Ethiopia estimated to had population of 110.14 million in 2019, which ranked 12th in the world. Aproximatly it had 98.9 million populations 2015's, Ethiopia is the well known land locked continent in Africa second to most populous contery next to Nigeria This assessment of the all population living in Ethiopia based on the United nations project, and makes Ethiopia fourteen the most populous continent in the wide world. The most current survey in 2007 establish an authorized populace of 73.7 million. the area to publically implement Christianity in the fourth era. Christians clarification for 63% of the condition's populace, complete 44% be appropriate to the Ethiopian Orthodox Church. Ethiopia had the earliest Hijra in Islamic history and the eldest Muslim reimbursement on the region. Muslims story for 34% of the populace.

The training was directed in Gambella Regional Government at public level from May to September. Gambella is the Capital City of Gambella Regional State. The Region covered a total area of 23,127sq.km. Gambella town is located at 767-km from Addis Ababa, capital city of Ethiopia in the southwest direction. According to 2007 National census (CSA, 2007), 46 the region has a total population of 306,916, the 2016 projected total population of the region is about 422,002 people and; the total population of the capital town is 42,812. Administratively, the region is divided into three zones and one special district called I tang. There are fourteen districts in the region having different ethnic groups and the regional official working language is Amharic.

The major ethnic groups residing in the region are Anywaa, Nuer, Majang, Komo and Opuo. However, there are also other ethnic groups, including Oromo, Kembata, Gurage, Tigre, and Amhara from other parts of the country and there is immigrant from the neighboring southern Sudan. The region had 1 hospital, 33 health centers, 176 health posts, 40 clinics and 26 pharmacies. Health service delivery points in the region provided different health care services, including Antenatal care, delivery service, Postnatal care, HIV testing and counseling, PMTCT, ART and TB screening and treatment. The Region had 4 specialists, 10 general medical practitioners, 53 Clinical officers, 433 nurses, 61 midwives, 544 rural health extension workers, 20 urban health extension workers, and 148 other health professionals.

Ethiopian Map

Figure 3 Map of Ethiopia

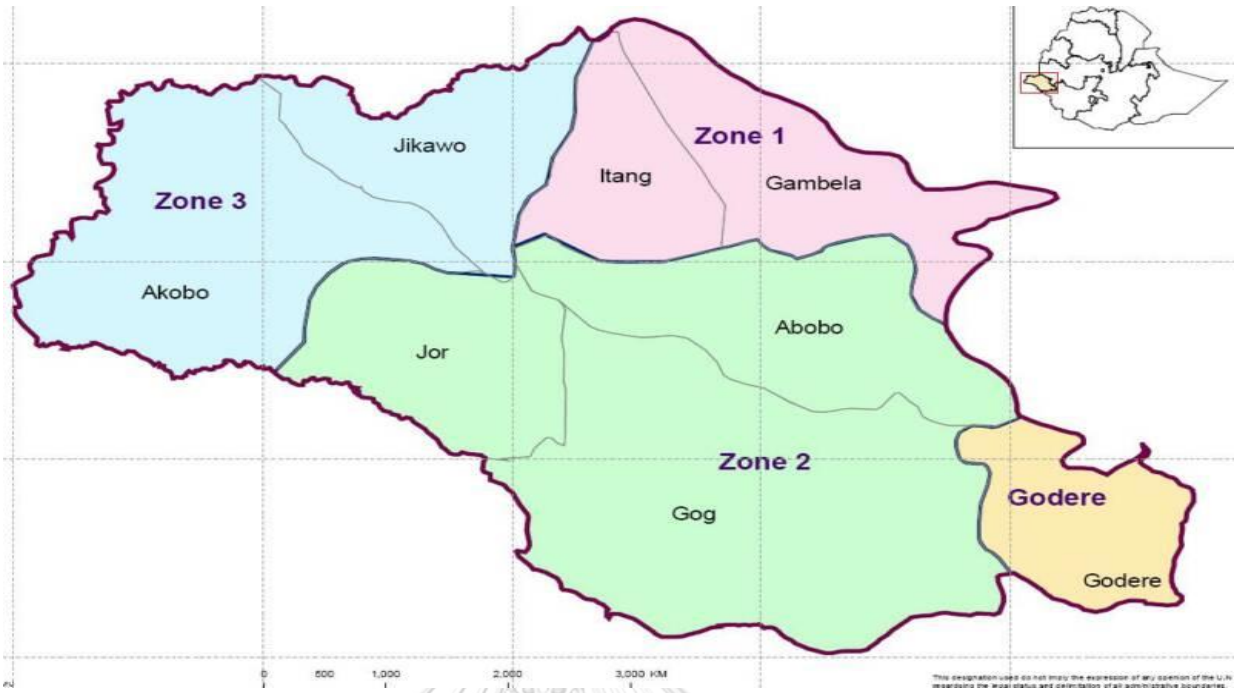


Figure 4 South West Ethiopia Gambella Zonal map

Figure 5 Gambella District Map

3.3 Source population

All delivered women was included on this study population The delivery mother between 15-49 years with a baby less than two years from 2016-2019 at the certain area in Gambella region.

3.3.1 The Sample scope purpose

There for: Cochran formula was used to calculate the sample size for this study.

n = desired number of sample size

z = the reliability coefficient at the 95% CI = (1.96)

p = Proportion of deliveries attended in the institution in the region = 45% (0.45)

d = expected error at 5% = 0.05

$n = Z^2 P (1-P)/ (d)^2$

$= 1.96^2 \mathbf{x} 0.45 (1-0.45)/0.05^2$

= 380 (+ 5% of expected refusals data)

The calculated sample size is 404

3.3.2 Sampling techniques/Data collection

3.4 3.5.1 Data collection procedures

Within each village, spin the pen method had been used to decide in which direction the households had been visited. This had involved identification of the Center of the village, spinning the pen to identify the direction and visiting consecutive households in the direction where the pen had pointed (proximity selection).

In the small communities scarcely inhabited and there was the number of deliveries expected to be small, advisable/allowed to contact the health extension worker (HEW) in order to get information about the deliveries occurred in the last two years. At each household, the interviewer finds out if a child mother was blind or deaf the interviewer will administer the questionnaire to the care taker. If they are not educated and doesn't read or write, the researcher was helping them to participate on behalf of the mother. But if the mother is deaf can read and write the mother can participate by herself

If the mother unavailable at the time of visited households will be consecutively visited, until the mother interviewed and the required number of women to be interviewed is in that village is attained.

Only one woman/mother of child under 2 years will be interviewed per household. In case there are two or more eligible women and children in the household, a coin will be tossed to identify the woman and the child to be interviewed. In the case of a household with no respondent or without an eligible woman/child, the following household in the right direction will replace it.

3.4.1 Sampling techniques

The simple random technique five district was selected and 10 villages out of the five was selected using simple random technique, purposive sampling technique considering the estimation number of delivery in the village population.

study participants had been selected using convenien sampling technique using proportionet to size.

Districts had been selected by purposive sampling technique, eligible area was Abobo district, Gog district, Itang district, Gambella Zuria, Jekaw. So for the Jekaw district for the language barrier, I was traning one of health providers who had been willing to help.

Five districts of the lower rate of institutional delivery using purposive sampling technique

Ethiopia

⇩

Multistage stage sampling technique

⇩

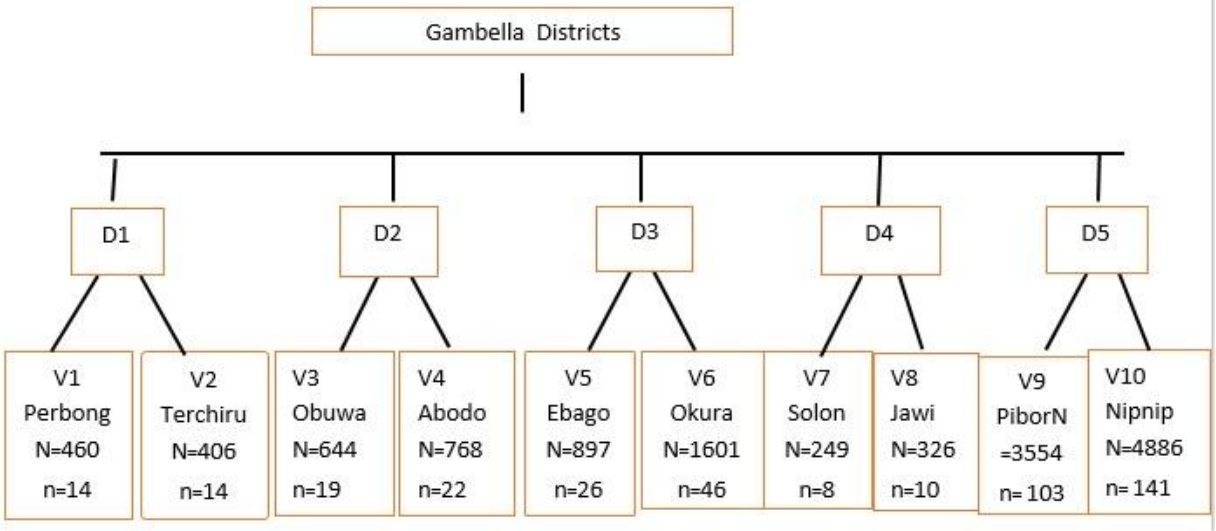
1st stage-14 districts in Gambella will be selected by purposive sampling technique

⇩

Five districs with lowest rate of Institutional delivery purposive sample technique

⇩

2nd Stage-out of 5 districts, 10 villages will be selected by simple random technique (2 villages per one district



3rd stage The eligible women selected by convinience sampling technique with proportionate to size

Figure 6 Sampling Technique

3.5 Inclusion & exclusion criteria

3.5.1 Inclusion Criteria

•The eligible mothers of children under two year old had been interviwed, if they are two a coin was tossed.

•The mothers of under two year old children willing to participate in this study

3.5.2 Exclusion criteria

•Women who lived <6 months in the study area, mothers who was seriously ill and unable to communicate was excluded in the study.

3.6 Validity and Rilability

Validity refers to extent, which a test measures what we actually measure: it is based on the adequacy with which the items in an instrument measure the attributes of the study. Validity refers to accuracy or truthfulness of a measurement.

3.6.1 Construct Validity

The questioners are intended to dependable conceptual framework modified since the Andersens Behavioral model for health service (Anderson, 1995), objective of the study and operational definitions as similar as studies in Africa. The questioners had been validated by the committee members, Dr Montakarn Chuemchit Advisor, Dr. Ratana Somrongthong, and Dr. Nipunporn Voranmoongkol MD. The questioners had been revised due to the comments given by the committee members.

3.6.2 Content Validity

There are 46 questions, with close structured question in Ethiopia, the articles was taken from some of the study in Ethiopia (Awoke, Muhammed, & Abeje, 2013). It has four part the sciodemographic, the knowledge, Attitude part which is part of the predisposing factor, the other second part is enebling factors. Need factors and dependent variables. The questioner modifies according to institutional delivery utilizational health service. The questioners which are structured and modified by the researcher using guidline and was not taken from already validated questions. In previous literature was validated using item-objective congruence(IOC) by three expertise. After validating the questionnairs, IOC scores by three experts was summed up and divided by three. The question which was lower than 0.5, was revised according to exam committee members and others expert's comments and advice. As IOC for each question was more than 0.5(Turner & Carlson,2003), questionnaires will be accepted. Item IOC □ 0.5 was indicated that the instrument was valid.

IOC = □ R/N

IOC = Item-objective congruence index

N = Degree of agreement of each item

(0= not sure,1.= related, -1= not related

In the study, IOC of the questionnaire for measure the knowledge of the respondent on pregnancy complications and service. The IOC of the all questioner was 1.

3.6.3 Face Validity

Face validity of questionnaire had been checked during pilot testing (pre-test) which had been done among the utilizational delivery service among mothers of under two years old in Gambella region, Ethiopia.Clarification and comprension of each question.

3.6.4 Translation of research Tools:

After validation and consistency test, the English description of the study had been converted into Amaric which was the major language, Anyuak and Nuer of the local language.

Pilot Testing:

The pilot test was made for the determination of the duration of interview, to check clarity, follow of question, appropriateness, cultural acceptability in the study area of Gambella region of 5 selected districts in ten villages.to avoid the data contamination, the PI made certain that there were no linkages between respondents from the actual study. To yield reliable result, pre-testing will be conducted by the PI using approximately 10% of sample size, that will be 45 of total sample size.

3.6.5 Reliability

Reliability is a measure of accuracy or consistency of a test to how dependably or measure the reliability of this study.

The pilot testing was done on thirty respondents in Gambella region, in one district near by. The internal consistence of the questionnairs was calculated by cronobach's alpha. Wording changes for question clarity will make as a result of the pre-test. The cronbach's alpha of questionnaire for measure the knowledge on pregnancy complications and service care was 0.82.

3.7 Instruments tools

3.7.1 Predisposing Factors

There are 46 questions, with close structured question in Ethiopia, taken from the articles and from some of the study in Ethiopia (Awoke et al., 2013). It has four part the

socio-demographic, the knowledge part which is part of the predisposing factor. The other second part is enebling factors.

A. Predisposing factors Variables contains the socio-demographic characteristics like maternal age, maternal marital status, maternal education, maternal income, maternal religion, maternal age at the first pregnancy, the paternal occupation, paternal education, women autonomy, parity, gravida, Knowledge on maternal health, pregnancy complication ANC, PNCservice, attitude on best delivery service facility, free service. the knowledge on service given after delivery within 24 hours; the knowledge based on the place of delivery.

A) The Knowledge score is categorized into three levels; (1) low level of knowledge (<60%); (2) moderate level of knowledge (60 – 80%); and (3) high level of knowledge (>80%). The cutting point of Knowledge was categorized into three groups according to Blooms classification (Bloom 1956.

Table 1 Cut off values for Knwledge Questionnaire

Knowledge	Cut-off point	Score
Low	<60%	0-17
Moderate	60-80%	18-23
Good level	>80	24-28

B) Attitudes regarding: the satisfactory of the mother during institutional delivery. For Attitude question, attitude on safe mother hood, Attitude toward the ANC during pregnancy, the attitude toward hospital.

This part of question aimed to determine attitudes of ANC and institutional delivery by usinglikert scale. The answer will be categorized as strongly agree, agree, Neutral, Disagree, strongly disagree. The rating scale was measured as follows:

Table 2 Scoring points for each type of question

Positive statement (n=)		Negative Statement (n=)	
Choice	Score	Choice	Score
Strongly agree	5	Strongly agree	1
Agree	4	Agree	2
Unsure	3	Unsure	3
Disagree	2	Disagree	4
Strongly disagree	1	Strongly disagree	5

Exavery et; (WHO/World Health Organization, 2002).

Total attitude scores were classified into 3 levels with cut-off point of mean (SD). The standard point for the attitude was mean ± standard deviation. All participant answer was accounted by standard deviation and mean.

1.Negative attitudes = mean-standard deviation

2. Nutural attitudes-mean = mean-standard deviation < point < mean + SD

3.Positive Attitudes-score = Point mean+SD

Exavery et.2014; WHO/World Health Organization, 2002(Odjidji & Duric, 2017; World health organization).

3.7.2 Enabling factors.

The respondent place of residence urban or rural. the source of information about health TV/Radio. The hours take to the health facility. The availability of the transport to the HF. The type of transport used to seek health care. The person that accompany during delivery.the availbility of the female skilled birth atandant, the service given by the Skilled birth atendant.

3.7.3 Need factor

This is the third independent variable that contains, Ante-natal care visit has attained or not, the problem during pregnancy, the complication during pregnancy, type of

pregnancy (planed and un planed) was it planned or un planned, frequency of ANC visits how many time she follows the ANC visit.

3.8 DEPENDENT VARIABLE

The place of delivery of the first pregnancy; The person of assisted during delivery, the attendant of the PNC within 24 hours. Including questions, where did you get delivery with your baby, by whom did you get delivery, did you recive service care within 24 hours after deliver, did you get PNC after delivery.

3.9 Data quality assurance

Designed questioner had been used to collect data from the mothers interviewed and five -days training had been given for 5 data collectors and supervisors on the objective of the research, data collection procedures and how to keep confidentiality. The data collectors will be health professionals, Health Extention Workers, Nurses, Mid Wife or public health Officer.Full informed consent had been obtained from all districts Health Office Managers or professionals after explaining the objective of the study with official letter of request to allow collection of the necessary data from each village. Team members had been instructed to check the completeness of each record at the end of each interview.

The investigator together with supervisor had been rechecking completeness of the record immediately during submission. Data had been checked daily for, completeness, accuracy, clearness and consistency by the supervisors and necessary corrections and changes will be made. Data cleaning will be done thoroughly by running frequency of variables using SPSS version 24.0 software program by the investigator before analysis

3.10 Data management and analysis

The completed recorded data will be checked for completeness, consistency and will be coded by the investigator with supervisors. Then data cleanup was performed to check for, accuracy, consistencies, & values. Any errors identified had been corrected. Data had been entered in to SPSS version 22 software package for analysis. The results had been presented using descriptive statistics including frequency tables, percentages, graphs, mean, and standard deviation for variable.

Chi square and Odds ratio was also used, to determine the presence of association and the strength of association of selected variables respectively. Finally, binary logistic regression had been applied to identify the confounding [effect] of each explanatory variable on the outcome variable using SPSS 22 window version software.

3.11 Ethical Considerations

Ethical clearance had been obtained from the Ethical Review Board of Chulalonkorn University (CPHS), and official letter of co-operation had been sent to Ethiopia Federal Ministry of Health (EFMOH) and Gambella Regional Health Bureau. Then a formal letter of cooperation had been written by the Director of Gambella Regional Health Bureau to each selected Districts.

Informed consent had been obtained for all study participants. Data collectors had been explained the study and its associated procedures, risks, and benefits to each interviewe. All women had been asked for their Signed consent before continuing with data collection. The consent form had been translated into Amharic, and Anyuek, the most spoken languages in the area, and back-translated into English to assure accuracy. It will include the name and the phone number of key contacts. The participants will sign the informed consent form. All signed consent form had been stored in a locked file cabinet and separate from data.

4 Result

4.1 Part A: Descriptive study Results

The finding was about the utilization of factors affecting the institutional delivery among mothers of under two years' children in Gambella region, west Ethiopia. The objective of the study is to determined the factors affecting the institutional delivery among the mothers of under two years old. The result was consistetd of Part 1 Socio-demographic with Predisposing, Knowledge, and Attitude, Part 2 Enabling factors, Part 3 Need Factors and the dependents variable part. The implication was done on five districts and 2 villages from each districts, with total 10 villages. Number of 404 respondents were interviewed, with a complete data. After that the data analysis were done through SPSS version 22. Table 1: one shows the socio demographic characteristics of the participant.

4.1.1 Predisposing factors

Respondents general characteristics

Data of the general characteristics of the research finding of the respondents were 13 questions. Table 1: Shows the most reproductive age group, among the respondents of 15-25 was 205(50.7%). Followed by 25-35 age group by percentage of 173(42.8%). The lowest age group of the respondents was26(6.4%).

Table 3Selected Socio-demographic characteristics of respondent (n=404) in Gambella region, west Ethiopia.

Table 1: Socio-Demographic Characterstics of the participants		
Socio- demographic characterstics	Number(n) Percentage (%)	
Age (year)		
15-24	205	(50.7)
25-35	173	(42.8)
36-45	26	(6.4)

Marital Status and Occupation:

The highest percentage among the marital status married was 384(94.3%). Though, the respondents that were divorced was 13(3.2%), The mothers who were single in this finding was 5(1.2), the respondents who were widowed was 3(0.7%), Others were 2(0.5%).

Table 4 shows the Marital statuse and occupational statuse of the respondents(n=404)

Marital Status	Numbers(n)	Percentage
Married	381	(94.3)
Single	5	(1.2)
Devorce	13	(3.2)
Widowed	3	(1.0)
Others	2	(0.4)

However, the occupational status of the respondent who were housewife was 312(77%), respondent of government employee was 39(9.7%), Respondent with other type of the occupational status was 41(10.1%), Merchant was 12(3%). Others respondents who had specified their other duties no job was 23(5.7%), those respondent that were students was 15(3.7%), respondents that were farmer 3(0.7%).

Table 5: Occupational Statuse of respondents

Table 3: Occupational statuse of the responents		
	Frequency(n)	Percentage(%)
Housewife	311	(77)
Government employee	39	(9.7)
Merchant	12	(3)
Others	41	(10)

The husband occupational status that were farmer was 184(45.5%), The husband that were government employee was 160(41.1%). husband with occupational among others was 40(9.9%) and the husband who were merchant was 14(41.1%). Other specificity of husband occupational status with no job was 13(3.2%), husband that were students was 5(1.2%).

Table 6Husband Occupational background

Table 4:Husband occupational status(n=404)		
Occupational status	Number(n)	Percentage%
Farmer	184	(45.5)
Government	160	(41.1)
Merchant	14	(3.5)
Others	40	(9.9)

Educational Background of the respondents

The educational background of the mother, the respondents that attained the secondary school was 137(33.9), followed by the respondents that had joined the primary school with percentage of 120(29.7%). The respondents attained the high school was 72(17%). Above high school of the mothers the percentage was 54(13%). The illiterate respondents were 21(5.2%).

Table 7: Educational Background of the respondents

	Frequency	**Percentage**
Primary	120	(29.7)
Secondary	137	(33.9)
High school	72	(17.0)
Above high school	54	(13.0)
Illitrate	21	(5.2)

Educational background of the husband who were illiterate was 152(37.6%), followed by those above high school level 109(27%).The husbands with secondary school education was 87(21.5%), those with primary school was 49(12. 1%).the illiterate was 7(1.7%)

Table 8Husband Educational Background

Table6:Husband Educational background(n)		
Husband Education	Number(n)	Percentage(%)
Primary	49	12.1
secondary	87	21.5
High School	109	27
Above high school level	152	37.6
illiterate	7	1.7

The percentage of the respondent's income, the husband salary was 259, respondent's salary was 64(15.8), The respondent with no salary was 81(20%). religion of the majority of the respondent who were protestant was 382(94.6), followed by Others 19(4.7%), Ethnicity of the respondent's majority was Nuer 246(60.9%), However, Anywaa was 158(39. 1%).Age at the first pregnancy 15-25years was 367(90.8%), <15years was 34(8.4%), 25-35 2(0.5%), 35-45years 1(0.2%). Autonomy the decision maker at My husband and I was 183(45.3%), followed by husband 118(29.2%), Mother in law/Relatives 69(17.1%).

Table 9Respondents,religion,ethnicity,and autonom

Table 7:Respondents,religion,ethnicity,and autonomy(n=404)		
Income	Number(n)	Percentage(%)
Respondents	64	(15.8)
Husabnd	259	(64.1)
No salary	81	(20.0)
Religion	Number	Percentage
Orthodox	3	(7.0)
Protestant	382	(94.6)
Others	19	(4.7)
Ethinicity	Number	Percentage
Anywaa	158	(39.10
Nuer	246	(60.9)
Age at the frist pregnancy	Number	Percentage
<20	34	(8.40)
20-34 years	367	(90.8)
>34years	2	(0.5)
Autonomy	Number	Percentage
Husband	118	(29.2)

Respondents	34	(34.0)
My husband and I	183	(45.3)
Mother in law/Relatives	69	(17.1)

4.1.2 Knowledge and Attitude

The knowledge was assessed by 28 questions, and the answer of given by yes or no. the correct answer was given one score and the wrong question was given 0 score. And the range was given from 0-17, 18-23,24-29. Total score was 28, 0-17(60%),18-23 was moderate level, and 24-28(>80%) consider as high level. The knowledge score was categorized into three levels; low level of knowledge (60%); The cutting point of knowledge was categorized into three groups.

Table 8 shows that the level of knowledge of respondents of pregnancy complications, ANC, and PNC, and good place of service care for deliver. The Percentage of the Low Knowledge level was 265(65.6%). Following by the Moderate knowledge level with the number and percentage of 105 (26.0%). The lowest number and percentage was high knowledge level with 34 (8.4%).

Attitude of the participant to ward institutional delivery and maternal health delivery. Table 8 Is the level of attitude of the respondents, regarding satisfactory of the mother during institutional delivery. The level of attitude toward health facility, health personnel, availability of the transportation, and the road. And the family influence including the cultural unacceptability.

This part of the question aimed to determined attitudes of the and institutional delivery by Likert scale. The answer was categorized as strongly agree, Agree, unsure, Disagree, strongly disagree. Negative attitude toward institutional delivery was 83(20.5%). Neutral Attitude was 254(62.9). Positive attitude was 67(16.6%).

Table 10: Knowledge level of respondents toward pregnancy related complications, followed by Attitude level toward institutional delivery and maternal health

Characteristics	**Frequency**	**Percent**
Knowledge		
Low Knowledge(<60%) (0-17)	265	(65.6)

Moderate Knowledge(60-80%) (18-23)	105	(26.0)
High Knowledge(>80%) (24-28)	34	(8.4)
Attitude		
Negative Attitude	83	(20.5)
Neutral	254	(62.9)
Positive Attitude	67	(16.6)

Table 11: Respondents knowledge on complication during delivery, pregnancy, and Ante natal care post natal care visit.

Statement (n=404)	**Correct answer**	
	Number	**Percentage**
1. Eclampsia/Hypertension are the complication that occurred at the delivery	125	(30.9)
2. Placenta abruption are the complication occurred at the delivery	118	(29.2)
3 Excessive bleeding are the complication that occurred during delivery.	149	(36.9)
4. Uterine Prolapse are the delivery complications.	80	(19.8)
5. pre-eclampsia are the delivery complications	102	(25.2)
6. Anemia are complication at the delivery	188	(46.5)
7. Pre-term baby is the complication at the delivery	105	(26.0)
8. Miscarriage is the complication at delivery	99	(24.5)
9.Hospital is a good place of health service delivery	196	(48.5)
10.Health center is a good place of health service delivery	196	(48.5)
11.Health post is a good place for health service delivery	78	(19.3)

12.Home is not a good place of health servce delivery.	33	(8.2)
13. Blood pressure is the measurement during ante natal care visit.	295	(73.0)
14 Weight measurement at the time of ante natal care visit.	327	(80.9)
15 Monitoring of fetus is the measurement during ante-natal care visit.	303	(75.0)
16. Tetanus Vaccine is the service given during ante natal care	308	(76.2)
17. A private hospital is a good place of health service deliver.	0	0.0
18.. Iron supplement is a vitamin given at ante natal care visit	313	(77.5)
19.. HIV Test is a service given at ante natal care visit	309	(76.5)
20. Maternal and child free delivery service care is given in some part of health facilities in Ethiopia.	331	(81.9)
21. The maternal health care a is service given during the post-natal care visit	297	(73.5)
22.. New-born care is service during post-natal care visit yes	292	(72.3)
23.. Vit. A and iron supplementation service given at time of service care.	294	(72.8)
24. Free of charge: is a maternal and child free service caree given at the health facilities during post-natal care visit in Ethiopia1	261	(64.4)
25Malaria test is the service not given during post-natal care.	134	(33.2)
26. The free delivery care: is a free service given for maternal and child care at the delivery and before delivery.	358	(88.6)
27 The free service for ante natal and post-natal care visit.	326	(80.7)
28. Free new born care service is given at the health facility	311	(77.0)

10.1 The source of information about the maternal health

The respondents who said that they have access of information on maternal health care was 380(94%). However, the respondents with no source of maternal health care information was 24(5.9%).

Respondents source of information on maternal health, respondents that got the information from the health provider was 234(57. 9%).Nevertheless, the respondents develop knowledge from health facility 99(24.5%). Though from Family and friends was 53(13. 1%).Those with no information about health was 17(4.2%).

10.2 Access to transportation

Respondent who had a good access to transportion was 316(78.2%), The respondents with poor access to transportation was 88(21.8%). The type of transportation available the repondents chooses Ambulance was 335(82.9%). The respondents who respond to Boat and traditional bed was having the same percentage 21(5.2%). The respondent who chooses none was 17(4.2%). And the respondents who chooses Bajaj were 9(2.2%).

10.3 The residence of the respondents

The respondents who was living in the rural are was 392(97%), Although the respondents who was living in urban area was12(3%).

10.4The person accompanied

The respondents that were accompanied by there husband was 163(25%). Following by the respondents that were accompanied by there friends was 123(30.7%). Participant who had been accompanied by there relatives was 123(30.4%). The respondents accompanied by there mother in law was 15(40.3%).

Table 12 Enabling Factors (Access to transportation, Respondent residence, Person Accompanied)

Maternal health information	Frequency	Percentage
No	24	(5.9)
Yes	380	(94.1)
Information of maternal health		
TV/Radio	1	(2.0)
Health provider	234	(57.9)
Family and friends	53	(13.1)

Health Facility	99	(24.5)
None	17	(4.2)
Access to transportation		
No	88	(21.8)
Yes	316	(78.2)
Type of Transportation		
Ambulance	335	(82.9)
Traditional bed	21	(5.2)
Bajaj	9	(2.2)
Boat	21	(5.2)
None	17	(4.2)
Respondent Residence		
Urban	12	(3.0)
Rural	392	(97.0)
The person Accompanied		
Husband	163	(25.0)
Mother in Low	15	(40.3)
Friend	123	(30.7)
Relatives	123	(30.4)

11.1The respondents atainding the ANC

The respondent who had been attending the ANC with was 385(95.3%), And those who had not attained the ANC were 19(4.7%). Means the respondents who had visit the ANC was more than those who not attained the ANC visit.

11.2 The frequency of ANC visit

The frequency of respondents visiting the ANC, Surprisingly, those who attended the ANC three times were 147(36.4%). Followed by those who attained four times ANC visit was146(36. 1%).And those who visit second time were 43(10. 6%).The same with those who attained more than that ANC visit 43(10.6%), Those who attained one time ANC visit was 11(2.7%). Among all the respondents who had been attending the ANC. The respondent who attained three times was higher, followed by the respondents who had visit the ANC four times. Than with similar percentage those who visit the ANC second time and more than with similar percentage. The repondents vist one times was havig the lower percentage. Followed by the respondents who never attained the ANC 13(3.2%), followed by the respondents who visit only once.

11.3 Pregnancy related complications

The pregnancy complications, the respondents with no pregnancy complications was 293(72.5%), The respondents who were having pregnancy complications was 111(27. 5%).Those who had no complications were higher than those who were having the complications.

11.4 Eclamsia and pre-eclamsia

The respondents who had pregnancy complications with Eclampsia was 360(89.1%), those who had the pregnancyrelated complications of eclamsia was 44(10.9%). The respondents who were not having the pregnancy complication of pre-eclampsia was 359(88.9%), The respondents who had pre-eclampsia was 45(11.1%)

11.5 Obstructive Labor and cesearian section

The respondents with out pregnancy complication of obstructive labour was 363(89.9%). And those with obstractive labour was 41(10. 1%).The respondents who were not having the pregnancy complication of cesarean section was 375(92.8%), the respondents who have had cesarean section was28(6. 9%).which means the respondents who were having the pregnancy complication were lower, than the respondents who were not having the pregnancy complication.

11.6 Planned or unplanned pregnancy

Probably, respondents that pregnancy was planned was 350(86.6%). However, the respondents that the pregnancy were unplanned was 54(13.4%). That means those with planned pregnancy was high percentage than the unplanned pregnancy.

Table 13 Need Factors (ANC attendence, Frequency of ANC visit, Pregnancy related complications, Eclampsia and Pre-eclampsia, Obstructed Labor, Cesarean Section and Planned or Unplanned Pregnancy)

Respondents ANC visit, And respondent pregnancy coplications		
Attending the Ante-natal care		
	Number	Percentage%
No	19	(4.7)
Yes	385	(95.3)
The frequency of Ante-natal care visit		
Never attaned ANC	13	(3.2)
Frist ANC Visit	11	(27.0)
Second ANC Visit	43	(10.6)
Third ANC visit	147	(36.4)
Four ANC visit	148	(36.1)
Pregnancy related complication		
No	293	(72.5)
Yes	111	(27.5)
The pregnancy complications pre-eclampsia		
No	359	(88.9)
Yes	45	(11.1)
The Pregnancy Complication Obstructive Labor		
No	363	(89.9)
Yes	41	(10.1)
Complication during pregnancy cesarean section		
No	375	(92.8)
Yes	28	(6.9)

Pregnancy were planned or unplanned		
Planned	350	(88.6)
Unplanned	54	(13.4)

4.2 Description of Dependent Variables

The result shows that 280(69.3%) of respondent's delivered at the health institiution. The mother's deliverer at home was 108(26.7%). And those deliveys on the road was 12(3.0%). Nevertheless, the respondent delivery in ambulance on their way to health facility was 4(1.0%).

The respondents assisted by the health provider or skilled birth attendant was 285(70.5%). Though the respondents that was assisted by the traditional birth attendant was 115(28.5%). The last was the respondents that were assisted by others was4(1.0). Which means the majority of the participants were assisted by the skilled birth attendant. And which followed by the traditional birth attendant.

12.1 Followed by the others assisted personnel.

Those who had taken 24 hours' delivery care service was 291(72.0%). Neverthless, the repondents who did not attain the 24 hours' delivery care was 113(28.0%).

The mothers who attained post-natal care was 309(76.5%). And the respondents who had not attained the post-natal care was 95(23.5%).

Table 14 Description of Dependent Variable

Place of delivery		
	Numbers	**Percentage**
Health facility	280	(69.3)
Home	108	(26.7)
on the road	12	(3.0)
in Ambulance	4	(1.0.)
The person that assisted the delivery		

skilled birth attendants	285	(70.5)
Traditional	115	(28.5)
Others	4	(1.0)
Access to 24 hours service care		
No	113	(28.0)
Yes	291	(72.0)
Attending the post-natal care		
No	95	(23.5)
Yes	309	(76.5)

4.3 Association of Predisposing factors, Socio-Demographic Factors, Knowledge, Attitude, Enabling factors and Need Factors) with Institutional Delivery

The Age value was not significantly associated with institutional delivery of P=value 0.62. Marital status was not significantly associated with institutional delivery of P=value 0.171.

Table 15 Association between Socio- Demographic Factors and Institutional Delivery

Socio Demographic Factors		**Institutional Delivery**		
		No	Yes	P=Value
Age group	15-25 years	60 (29.2%)	145(70.7%)	0.62
	25-35 years	54 (31.2%)	119(68.8%)	
	35-45 years	10 (3.8%)	16(61.5%)	
Marital Group	Others	10(4.3)		0.171
	Married	114(29.9)		

Table 14 Occupational statuse

Occupational status was not significantly associated with institutional delivery of P=value 0.126. husband occupational status was not significantly associated to institutional delivery of p=value 0.441.

Table 16 Association between Occupation and Institutional Delivery

Instituional Delivery cross tabulation		**Instituional Delivery**		
		No(%)	Yes (%)	P-Value
Occupational Status	House wife	98 (31.4)	214 (68.6)	0.62
	Government	6(15.4)	33(84.6)	
	Merchant	5(41.7)	7(58.3)	
	Others Specify	15(36.6)	26(63.4)	
Husband Occupational stauts	Farmer	58 (31.5)	126(68.5)	
	Government employee	47 (28.3)	119 (71.7)	
	Merchant	3 (21.4)	11 (78.6)	
	others	16 (40.0)	24(60.0)	
Husband occupational status	Student	5(50.0)	4 (50.0)	0.725
	No job	2(40.0%)	3(60.0%)	

Table 15 Educational Background

The educational background was significantly associated with institutional delivery of p=value 0.015. the educational background of the husband was not significantly associated with institutional delivery of p=value 0.17.

Table 17 Association between Educational Background and Institutional Delivery

Institutional Delivery cross tabulation		Instituional Delivery		
		No (%)	**Yes (%)**	**P=Value**
Educational background of husband	Primary School	46 (38.3)	74 (61.7)	0.015
	Secondary School	14 (19.4)	91(66.4)	
	High School	38 (34.9)	58(80.6)	
	Above high School level	10 (18.5)	44(81.5)	
	Illitrate	8 (38.1)	13(61.9)	
Educational background of husband	Primary School	21 (42.9)	28 (57.1)	0.17
	Secondary School	23 (26.4)	64 (73.6)	
	high school	38 (34.9)	71 (65.1)	
	Above high school	40 (26.3)	112 (73.7)	
	Illiterate	2 (28.6)	5 (71.5)	

Table 16 Income

The income is not significantly associated with institutional delivery of p=value 0.521. The ethnicity is significantly associated with institutional delivery with p=value 0.006

16.1 Autonomy Parity and gavida

Autonomy was not significantly associated with institutional delivery with p=value 0.191. Gravida was not significantly associated with institutional delivery of p=value 0.067. Parity was not significantly associated with institutional delivery with p=value 0.107.

Table 18 Association between Predisposing Factors and Institutional Delivery

Institutional delivery cross tabulation		Institutional Delivery		
		No (%)	**Yes** (%)	**P-value**
Income	Respondents	18 (28.1)	46 (71.9)	0.521
	Husband/ family	77 (29.7)	182 (70.3)	
	No salary	29 (35.8)	52 (64.2)	
Ethnicity	Anywaa	61 (38.6)	61 (61.4)	0.006
	Nuer	63 (25.6)	183 (74.4)	
Autonomy	Husband	42 (35.6)	76 (64.4)	
	Respondent	14 (41.2)	20 (58.8)	
	My husband and I	50 (27.3)	133 (72.7)	
	Mother in law/Relatives	18 (26.1)	51 (73.9)	
Gravida Ground	1-2	53 (27.5)	140 (72.5)	0.067
	3-4	44 (29.7)	104 (70.3)	
	>4	27 (42.9)	36 (57.1)	
Parity Group	1-2	55 (27.6)	144 (72.4)	0.107
	3-4	46 (30.5)	105 (69.5)	
	>4	23 (42.6)	31 (57.4)	

Pearson Chi square, P-value<0.05

Knowledge of the respondent on maternal health associated with institutional delivery.

The knowledge of the respondent on maternal and pregnancy complication was not significantly associated with institutional delivery of p value 0.205. The attitude of respondent on maternal health service was significantly associated with institutional delivery with p=value 0.003.

Table 19 Association of Knowledge and Attitude with Institutional Delivery

Characteristics	Institutional Delivery		p-value
	No	Yes	
Knowledge			0.205
Low Knowledge	88 (33.2)	177 (66.8)	
Neutral	25 (23.8)	80 (76.2)	
High Knowledge	11 (32.4)	23 (67.6)	
Attitude			0.003
Positive Attitude	36 (43.4)	47 (56.6)	
Neutral	76 (29.9)	178 (70.1)	
Negative Attitude	12 (17.9)	55 (82.1)	

Association of Enabling Factors and Institutional Delivery

Availability of maternal source of information was significantly associated with institutional delivery of p=value <0.001. Access to transportation was significantly associated with institutional delivery with p=value 0.019. Availability of female skill birth personnel was significantly associated with institutional delivery of p=value 0.016. Attending the ANC visit was significantly associated with institutional delivery of p=<0. 001

Table 20 Association between Enabling Factors and Institutional Delivery

Institutional Delivery Cross tabulation		**Institutional Delivery**		
		No	**Yes**	**P=value**
Availability of maternal health information	No	17 (70.8)	7 (29.2)	
	Yes	107 (28.2)	273 (71.8)	
Access to transportation	No	36 (40.9)	52 (59.1)	0.019
	Yes	88 (27.8)	228 (72.2)	
Female skilled personel	No	17 (48.6)	18 (51.4)	
	Yes	107 (29.0)	262 (71.0)	
Attending the ante natal care visit	No	13 (68.4)	6 (31.6)	0.001
	Yes	111 (28.8)	274 (71.2)	

Pearson Chi square, P-value<0.05

Association of Frequency of ANC visits with institutional delivery

Frequency of ANC visit was not significantly associated with institutional delivery with p=value 0.205.

Table 21 Association of Frequency of ANC visits with institutional delivery

Institutional cross tabulation		**Institutional Delivery**		
		No%	Yes%	P=value
Frequency of ante natal care visit	Never attaned ANC	9 (9.2)	4 (30.8)	0.205
	Frist ANC Visit	5 (45.5)	6 (54.5)	
	Second ANC Visit	19 (44.2)	24 (55.8)	

	Third ANC Visit	33 (22.4)	114 (77.6)	
	Four ANC Visit	46 (31.5)	100 (68.5)	
	More than one	11 (25.6)	32 (74.4)	

Pearson Chi square, P-value<0.05

Association of Pregnancy related complications and Institutional Delivery

Pregnancy related complication was not significantly associated with institutional delivery with p=value 0.221. the pregnancy complication pre-eclampsia was not significantly associated with institutional delivery of p=value 0. 335.The pregnancy complication obstetric labor was not significantly associated with institutional delivery with p=value 0.571. pregnancy complication of cesarean section was not significantly associated with institutional delivery with p=value 0.493. pregnancy planned or unplanned was not significantly associated with institutional delivery with p=value 0.085.

Table 22 Association of Pregnancy related complicationsand Institutional Delivery

Institutional Delivery cross tabulation		**Institutional**		**Delivery**
		No%	yes	
Pregnancy related complication	No	95 (32.4)	198 (67.6)	0.221
	Yes	29 (26.1)	82 (73.9)	
The pregnancy complication pre-eclamsia	No	113 (31.5)	246 (68.5)	0.571
	Yes	11(24.4)	34 (75.6)	
The pregnancy complication of obstructive labor	No	113 (31.1)	250 (68.9)	0.571
	Yes	11 (26.8)	30 (73.2)	
Pregnancy complication of ceserian section	No	117 (31.2)	250 (68.9)	0.493

	Yes	7 (25.0)	21 (75.0)	
Pregnancy planned or unplanned	No	102 (29.1)	248 (70.9)	0.085
	Yes	22 (40.7)	32 (59.3)	

Pearson Chi square, P-value<0.05

Table 23 Association of access to 24 hours service care with institutional delivery with p=value <0.001.

Institutional delivery cross tabulation		**Instituitonal delivery**		
		No%	***Yes%***	***0.001***
Access to 24 hours service care	*No*	*99 (87.6)*	*14 (12.4)*	
	Yes	*25 (8.6)*	*266 (91.4)*	

Pearson Chi-Square, P-value<0.05

5 Discussion

The findings of the review have shown appreciated information which is comparable with all the factors related to the outcome variable across the nation. The factors were related to predisposing, enabling, and need factor. The previous research estimated low maternal health care service utilization in the rural settings and has demonstrated that societal, individual, sociodemographic and health service factors affect maternal health care seeking behavior of women. The previous findings of the study, the number of women who visited health facilities at least once during their recent pregnancy for antenatal care were 74.3% .11.3% of the women visited health facilities at least 4 times for antenatal care service utilization. The previous study was related to studies done in East Wollega and Southern Ethiopia. Therefore, associating to other states the ANC utilization in the study area was low. Approximately 80% of respondents received ANC more than four times in Indonesia and a qualitative study done in three African countries; Kenya (92%), Malawi (98%) and Ghana (92%) are women who had received ANC services at least once.(Kifle, Azale, Assefa, & Melsew, 2017)

Recently the finding in Gambella region, four-time ante-natal care visit of the respondent was 148(36.1%) which was high related to previous study. And the three times visit was 147(10.6%). Followed by second time visit 43(10. 6%).Similarly with more than one visit 43(10. 6%).because of some languages bariear and its found to be higher than the previous studies. The previous study reported that participants who had attend ANC vist were very low. The study result were not consistent with similar studies done in Ethiopia.(Kifle et al., 2017)

Currently the study shows that the institutional delivery was 280(69.3%), Home delivery was 108(26.7%). On the way to health facility, on the road was 12(3%) which is institutional delivery seems to be higher than home delivery. Due to language barrier and the interpreter's barrier. It might be the couse of getting higher percentage. The respondents who gets delivery in ambulance was 4(1%). Due too the distance to health facility and unavailability of transportation. Some respondnts may delivery in the ambulance.

Recently, the study shows that the women who attended institutional delivery, who had attainded 24 hours' service care was 291(72%) and those that attened the post natal care was 113(28%). Which is contradicted to the same result on institutional delivery service. Therefore, if the women attaned the instituinal delivery, it's probabily, expected

to attaned the PNC.The previous result showed postnatal health care service in the study setting was very low.

Additionally, place of birth was also shown significantly associated with seeking postnatal care service. Consistent with studies done in northwest Ethiopia, delivering at health facility led women to seek for PNC services. (Kifle et al., 2017) The previous study showed that individual attitude towards health care providers and perceptions on the quality services provided in health facilities were mentioned as influencing factors for maternal health service seeking behaviors of women consistent with previous studies. (Kifle et al., 2017)

This was also consistent with study done in Dembecha district, Northwest Ethiopia. This could be explained in to three reasons; (i) low institutional delivery in the study setting, (ii) low antenatal health coverage and (iii) lack of knowledge on the importance of the service.(Kifle et al., 2017) The previous finding showed that institutional delivery service utilization was 12.1% in the District and the majority of mothers (87.9%) gave birth at home. The study also revealed that overall delivery assisted by skilled birth attendants was 12.7%. This study finding was higher than National and Amhara region EDHS result of 2005 which was 6% and 3.5% respectively, this might be due to the time gap, i.e., since 2005 there could be improvement in accessing and utilizing the service.(tefera, Alemu, & yohannes, 2012)

This study showed that institutional delivery service utilization in the study area was high 280(69.3%) compare to others findings. This finding is not constant with the other finding in Ethiopia; EDHS 2011(Ethiopia, 2016), in the urban Arsi Zone and in Metkel and in Metekel (Tura, 2015). This finding was also supported with the qualitative data findings. The key-informant said that; "Like any Ethiopian region, proportion of mothers who uses institutional delivery service,

Women who had a job (peaty trading) were less likely to seek antenatal health care service utilization than who had no formal jobs. This association might be explained as the time constraints. The petty traders and day laborers did not earn for their livelihood unless they engaged in their daily activities so that they could not have time for ANC visit. Birth order was found significantly associated with maternal health seeking behavior of women, especially antenatal care and delivery service. It was investigated that utilization of antenatal care and delivery service declined with the increase in number of births. Given women had six and above safe delivery history, she may feel experience healthy and less likely seek maternal health care services. Contrarily, when

the number pregnancies she might feel as a risk mother and seek maternal health care services. The previous study found that increasing birth order negatively associated with antenatal care service seeking.

Recently the study has shown that percentage of the protestant followers was 382(94.6%). Others were 19(4.7%) and the orthodox follower was 3(7%), There was no religious influence on delivery for health seeking activities. This finding is consistent with studies done in Bangladesh. The possible explanation could be Muslim women in the study area believed that their naked body could only be seen by their husband. This is also demonstrated with qualitative data in which religion was an influencing socio-cultural factors of maternal health care service seeking behavior. They prefer female traditional birth attendant than skilled health care provider.(Kifle et al., 2017)

The findings of the previous study, also suggested that religion is associated with maternal health care service seeking behaviors of women. Muslims followers were found less likely to seek maternal health care seeking service as compared with Christian followers. (Kifle et al., 2017)

Recently in table 8, The knowledge level of respondent's Lower level 0-17 was 265(65.6%), moderate 18-23 was 105(26.0%), High level 24-28 was 34(8.4%). the finding of attitude of the respondents toward maternal health and institutional delivery. The Neutral attitude toward institutional health service was 254(62.9%). The negative attitude 83(20.5%). And the positive attitude was 67(16.6%).

The current study reported that knowledge of pregnancy complications was found a significant factors associated with maternal health care seeking behaviors in the study settings Likewise, other previous studies showed, women who had knowledge on pregnancy complications was by far more likely to seek ante-natal care, postnatal care and delivery service utilization than their counters. The findings of the previous study, also suggested that religion is associated with maternal health care service seeking behaviors of women. Muslims followers were found less likely to seek maternal health care seeking service as compared with Christian followers. (Kifle et al., 2017)

Currently, Association factors on age group of the mother compare to the previous study was the most likely to deliver at health facility. 25-35 119(68%) was the age group who had attained the health facility with p=value 0.62%. 15-25years 13(3.2%) was those who had visited the health facility higher than other age group 35-45 age group 0f 10(38.5%) was those who had not attained the health facility, 16(61.5%) was the mothers who had attained the institutional health facility with p=value0.62%. The age of the

mother in previous, study was significantly associated with institutional delivery service utilization. Younger mothers (aged <25 years) were 1.8 times more likely to deliver in health institution than older mothers. Heterogeneity test indicated 75%, hence random effect model was assumed in the analysis. Sensitivity analysis was done, and no change was distinguished in the overall(Abate, 2016)

The mothers who were married was 381(94%). The respondents who had been divorced was 13(3.2%). Widowed were 3(1.0%). the single mothers were 5(1.2%). Others was 2(0.5%%). In previous study with the related study of the marital status. Previous finding regarding the marital status, 37(7.9%) were single, 397(84.3%) married, 17(3.6%) divorced, 7(1.5%) separated, and 13(2.8%) were widowed (Awoke et al., 2013)

Current, study of mothers of under two-year-old children, the majority of the Ethnicity was Nuer 246(60.9%), following the Anywaa ethnic group of 158(39.1%) respondents. Compare with the previous study in Ethiopia. Majority of mothers, 434 (92.1%) were belong to the Amhara ethnic group. (Awoke et al., 2013)

This finding of the respondent's occupational status, house wife was 312(77%).others was 41(10.1%). The government employee was 39(9. 7%).And merchant was 12(3%) compare to the previous finding of the occupational status, 334(70.9%) were house wives, 63 (13.4%) were farmers, and 74(15.7%) had other occupations.(Awoke et al., 2013)

Current finding on table 4 shows the husband occupational status, Farmers of the husband was184(45. 5%).Followed by the husband who had been a government employee. Compared to the previous study shows of the respondent's occupational status, 334(70.9%) was a house wife, 63 (13.4%) was farmers, and 74(15.7%) was another type of occupations. (Awoke et al., 2013)

This finding in table 5: recent educational status of the mother 152(37.6%) was the respondents who had attained above high school. Respondents attained the high school was 109(27%). The respondents attained the secondary school was 87(21. 5%).The respondents attained the primary was 49(12.1%).7.91.7%) were those who are illiterate cannot read or write. Which is less than the previous study. From the previous study concerning educational status, 224(47.6%) of mothers cannot read and write, 47(10%) can read and write, 105(22.3%) attended primary education and 95(20.2%) of the respondents completed secondary education and above,(Awoke et al., 2013)

This study found that the womens educational status to their antenatal health care service seeking behavior in maternal health care service. Women able to read and write were more likely to seek antenatal health care, and institutional delivery. The finding of this study also suggested that women who had able to read write and formal education attended husband were more likely seek postnatal care service. which is in line with previous studies done in Ethiopia. It is understood that education is likely to enhance women autonomy and they are near to information and would have good knowledge. (Kifle et al., 2017)

Table 6: recent study shows that the majority of the husband attained above high school was 152(37.6%). The husband that joined high school was 109(37. 6%).Those completed the secondary was 87(21.5%). Followed by those attained who attaind primary school was 49(12.1). those who were illiterate was 7(1.7), Which is husband education enhance womens seeking of health service and maternal health seeking behavior. And it reduces the maternal and child death and child as well.

Women autonomy in table 7: of this study decision made by respondent and her husband was183(45.3), and the decision made by the husband for health seeking was 118(29.2%). Decision made by mother in law was 69(17.1) those made by the respondents autonomous was 34(8. 4%).which means its less likely for the respondent to seek for health service behavior. This finding is inconsistent with systematic review conducted in sub Saharan Africa (SSA), which stated that women with highest levels of autonomy most likely seek facility-based delivery. This might be due to the fact that the SSA review assesses power of the women in relation to other activities such as household purchase and freedom of movement in addition to decision on place of delivery.(Abate, 2016)

However, in four of studies included in the meta-analysis, autonomous women are less likely to deliver in health care facility.(Abate, 2016) In three of the studies, the probability of delivering in health care facility was ~1.90–4.33 times higher among autonomous women than non-autonomous women.(Abate, 2016) The finding of this review showed insignificant association of utilization of institutional delivery service with women's autonomy 1.36. Hence random effect model was assumed during analysis. Sensitivity analysis was done, and no change was noted on overall.(Abate, 2016)

The recent study shows the respondent who got health information from health provider was 234(57.9%). Nevertheless, the respondents develop knowledge at health facility was

99(24.5%). Though from family and friends was 53(13.1). Those with no information about health 17(4.2).

4.4 Limitation of the study

Study had been made by the cross sectional sampling method and this study had been done in five districts of high prevalence rate of home delivery and two villages in each districts. however, the government of Ethiopia is working on maternal and child health. in order to decrease maternal mortality rate. Even though, the mothers who are delivery at home still high.

.Permission from each village administrative had been obtained. Confidentiality of the information collected from each mother had been maintained and names of participants had not been recorded. All data collection had been carried out with absolute privacy.

4.5 Recommendation

The magnitude of risk of home delivery, pregnancy complications, and benefit of institutional delivery, free service care for delivery and child care should be displayed to the public as it is necessary to help people in the society consider about these issues. The campaigns for women empowerment regarding knowledge and awareness of institutional delivery, settlement, and trainings for mother of under two years' children should be created. Furthermore, the health sectors should have a plan to give training about the risk of home delivery, and pregnancy complications. guarantee the safety for mothers of under two-year-old children's. Legal regulation and punishment should be strictly enforced to the family who doesn't allow a mothers to seek for a health care in order to reduce maternal mortality, child death occurrence and protect to women's right.

4.6 Conclusion

This study was a quantitative, cross-sectional study on the utilization of institutional delivery among mothers of two-year-old children in Gambella region, west Ethiopia. The study predicts that low knowledge on pregnancy complications of the respondents was 265(65.6%) and moderate of knowledge was 105(26.0%). Women Autonomy respondents chance of decision making on health issues is very less than the others. Income respondent's salary 64(15.8%) which is very few mothers have income salary but the rest does't have. That means it will have influence on pregnancy complication, and luck of good follow up of maternal health. The socio-demographic characteristics of mothers, knowledge of mothers, Attitude, enabling factors, Need factors institutional delivery was the common associated factors on the utilization of institutional delivery

service in Gambella. Even though 385(95%) of mothers received antenatal care, only 280(69.3%) was the one that delivered at health facility depicting that there was a gap between antenatal care service and delivery service utilization. It's important to increase the women autonomy on decision making on health seeking behaviors. And it's good to increase the girl's education, to enhance the institutional delivery and know the benefit and the risk of home delivery. Educating the mothers about the knowledge of pregnancy complications, and the institutional delivery benefit. And as we predict Education of the mother was significantly associated to institutional health with P=value <0.015. Ethnicity was significantly associated to institutional health of P=<0.006. Attitude positive was significantly associated to institutional delivery with P=value<0.003. Access to transport significantly associated with institutional delivery of P=Value <0.019.

ANNEX

QUESTIONERS

The Utilization of Institutional Delivery Service Among Mothers of Under Two Years Children in Gambella Region, Ethiopia.

ID_1-404

Target population: - Among mothers of children under two years old in Gambella region.

GENERAL INSTRUCTIONS TO INTERVIEWER

You are requested to follow these instructions.

- Client's information will be treated with complete confidentiality.
- You shouldn't show agreements, disagreement or surprise while interviewing.
- Ask your questions in a neutral manner.
- For closed questions circle the letter/numbers of appropriate to participant's response.

Region_____

_____

Zone_____

_____

District_____

_____

Village_____

_____

Date: _____

Sign: _____

Independent variables

Section I Predisposing Factors

A Socio-demographic characteristics and obstetric case of the respondents

No	Question and filters	Answer	
SD1.	How old are you?	..... Years	
SD2.	What is your marital status?	☐ 1.Married	
		☐ 2. Single	
		☐ 3.Divorce	
		☐ 4.Widowed	
		☐ 5.Others	
SD3.	What is your occupational status?	☐ 1. Housewife	
		☐ 2.Government employee	
		☐ 3.Merchant	
		☐ 4. Others specify.....	
SD4.	What is your husband occupational status?	☐ 1.Farmer	
		☐ 2.Government employee	
		☐ 3.Merchant	
		☐ 4. others specify.....	
SD5.	What is your educational background?	☐ 1.Primery	
		☐ 2.Secondery school	
		☐ 3.High school	

		☐ 4.Above high level of education	
		☐ 5.Un educated	
SD6.	What is your husband educational background?	☐ 1.Primery	
		☐ 2.Secondery	
		☐ 3. High school	
		☐ 4. Above high school level	
SD7.	What is your income/ salery?	☐ 1……ETB/Month respondents	
		☐ 2……ETB/Month for the family income	
SD8.	What is your religion?	☐ 1.Orthodox	
		☐ 2.Protestant	
		☐ 3.Muslim	
		☐ 4.others Specify…..	
SD9.	What is your ethnicity?	☐ 1.Anywaa	
		☐ 2.Nuer	

		☐3.Majang	
		☐3. Opuo	
		☐4.Kumo	
		☐5. others (specify……)	
SD10.	How old were you at the first pregancy?	☐1……year old	
SD11.	The decision maker on maternal health service is?	☐1.Husband	
		☐2.Respondent	
		☐3.My husband and I	
		☐4. Mother in law/Relitives	
SD12.	What is the number of your pregnancy, including still birth?Gravida	……	
SD13.	How many children do you have.(parity)	……	

(B) Knowledge of the respondent on pregnancy

			Yes	No	skep
KN14.	What are birth complications at the delivery? You can	☐1Eclampsia/ Hypertention			

	answer more than one.				
		☐2.Placenta abruptio			
		☐3.Excessive bleeding			
		☐4.Uterine prolapse			
KN15.	What are the pregnancy complication?you can answer more than one.	☐1.pre-eclampsia			
		☐ 2.Anemia			
		☐3.preterm baby			
		☐ 4.Miscarriage			
KN16.	Were do people seek for best delivery service ?	☐1.Health center			
		☐ 2.Health post			
		☐ 3.Home			
		☐ 4.Hospital			
			Yes	No	
KN17.	What are the service given in ANC unit?	☐1.Blood pressure measurment			

		☐2.Weight measurement			
		☐3.Monitoring of heart rate of the fatus			
		☐ 4.TT vaccine			
		☐ 5.Iron supplement			
		☐ 6.HIV test			
KN18.	Is there any suport given during delivery, for mother and for baby?if yes	1yes , 2 No			QKN21
KN19.	what are the service given during post partum care visit?	☐ 1.Managment of the mother			
		☐2.Management of new-born complication			
		☐3. Vit.A and Iron supliment for the mother			
		☐4.Contraceptic service			
		☐5.Malaria treatment			
KN20.	What are the support given by the government for	☐ 1. Free of charge on delivery care			

	maternal and child care?				
		☐ 2.free ANC and PNC			
		☐ 3.free child care			

(C) ATTITUDE OF THE RESPONDENT TO WARD THE INSTITUTIONAL AND MATERNAL HEALTH

		Strongly Agree	**Agree**	**Unsure**	**Disagree**	**Strongly disagree**
AT21.	You should go to health facility, at the time of delivery.					
AT22.	You should plan ahead of time, where you will give birth to your baby.					
AT23.	Mother doesn't go to health facility, because its too expensive to get birth in health facility.					
AT24.	Mothers doesn't go to health facility to give birth, because its not easy to travel to health					

	facility, For luck of access transport.					
AT25.	Mothers fail to go to health facility for delivery, because of poor access to road.					
AT26.	Mothers do not go to health facility, because the health personel doesn't treat the mothers respectfull at delivery.					
AT27.	Mothers doesn't go to the health facility, because the family thinks giving birth in health facility its not necessary.					
AT28.	Mother doesn't go to health facility, because giving birth by male skilled health personel because its cultural unacceptable.					
AT39.	Mother doesn't go to health institution, because when the mother have mony no need to go to health facility to get birth.					

SECTION- II ENABLING FACTORS OF THE INDEPENDENT VARIABLES

EN30	Do you get any information about the maternal health?	☐1.yes	If yes go to nextQ33
		☐2.No	
EN31.	From were do you get information about maternal health in your area?can answer more than two.	☐1.Mass media TV/Radio	
		☐2.Health provider	
		☐3.Family and friends	
		☐4.Health facility	
EN32.	How many hours does it takes you, from your resedence to the health facility?	.....hour's by transport	
		.....minute's by foot	
EN33.	Do you have availability of transportation?if	☐1.Yes	
		☐2.No	
EN34.	What kind of transport is available in your area?	☐1.Ambulance	
		☐2.Traditional bed	
		☐4.Bajaj	
		☐5.Boat	

EN35.	Where is the place of your residence?	☐ 1.Urban	
		☐ 2.Rural	
EN36.	Who accompaned you at the time of delivery?	☐ 1.Husband	
		☐ 2.Mother in low	
		☐ 3.Friend	
		☐ 4.Relatives	
EN37.	Is there female skill birth attendant in the health facility?	☐ 1.yes	
		☐ 2.No	

SECTION III- NEED FACTORS OF THE INDEPENDENT VARIABLES

N38.	Have you attended ANC visit before the delivery?	☐ 1. yes	
		☐ 2.No	
N39.	How many time did you visits ANC?	☐ 1. Frist ANC visit	
		☐ 2. Second ANC visit	
		☐ 3.Third ANC visit	
		☐ 4.Fourth ANC visit	
		☐ 5.more than 4	
N40.	Do you have any pregnancy complication?if yes	☐ 1.yes	Qto N43

		☐ 2.No	
N41.	What was the complication during pregnancy?	☐ 1. Eclampsia	
		☐ 1.preeclampsia	
		☐ 2.obstructive labor	
		☐ 3.Cesserian section	
N42.	Were the pregnancy planned or unplanned?	☐ 1.planned	
		☐ 2unplanned	

SECTION-IV DEPENDENT VARIABLES

D43.	Were did you get delivery with your baby?	☐ 1.Health facility	
		☐ 2.Home	
		☐ 3.on the way to health facility/Road	
		☐ 4.In ambulance	
D44.	By whom did you get delivery?	☐ 1.Skilled birth attandant	
		☐ 2.Traditional birth attandant	
		☐ 3.others	
D45.	Did you recive service care within 24 hours after delivery?	☐ 1.Yes	If no skip

		☐ 2.No	
D46.	Did you get PNC after delivery?	☐ 1.Yes	
		☐ 2. No	

Budget

Sn.	Particular	Unit	Number	Unit cost in THB	Total
1	Design and Printing of Research Questionaire	Page	500	1.0	500.0
2	Incentives to data collectors	Person	3	300.0	900.0
3	Accumodation during data collection	Day	45	500.0	22500.0
4	Stationary	Set	3	500.0	1500.0
5	Transport	Time	45	70.0	3150.0
6	Communication (Mobile and internate)	Time	3	500.0	1500.0
				Total	**30050.0**

Work Plan

Sn	Activities	Time Line 2019											
1	Literature Review	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
2	Proposal Development												
3	Tool Development for Data collection												
4	Proposal presentation												
5	Validity of tools												
6	Ethical Aproval												
7	pilot test												
8	Recruit and train research assistant												
9	Data collection												
10	Data Management												
11	Data Management and processing												
12	Thsis Exam												
13	Revision based on comments												
14	Data Analysis and interpretation												

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