ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF ALLIED HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

KNOWLEDGE AND PRACTICE ON PREVENTION OF OBSTETRIC FISTULA AMONG SKILLED BIRTH ATTENDANTS IN PUBLIC HEALTH CENTERS IN ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES, ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTERS IN MATERNITY AND REPRODUCTIVE HEALTH NURSING

MAY 2016

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ACKNOWLEDGMENTS

I would like to forward my deepest gratitude to AAU, Department of Nursing and Midwifery post graduate program for the educative opportunity to do this research thesis.

My heartfelt thanks go to my advisor Sr. Semarya Berhe (BSc, MSc) from Addis Ababa University, Department of Nursing and Midwifery for her valuable comments and guidance during the whole thesis development.

My gratitude also goes to the data collectors, supervisors and all study participants who took part in this study and showed a greatest effort in acquiring appropriate information.

My sincere thanks also go to the Addis Ababa Fistula Hospital, Hamlin College of Midwives for providing me necessary resources used for this research thesis

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LIST OF ACRONYMS

AAFH	Addis Ababa Fistula Hospital
AARHB	Addis Ababa Regional Health Bureau
ANC	Antenatal Care
BEmONC	Basic Emergency Obstetric and Newborn Care
CEmONC	Comprehensive Emergency Obstetric and Newborn Care
CPD	Continuous Professional Development
FMOH	Federal Ministry of Health
IEC	Information Education Communication
NGO	Non-Government Organization
OF	Obstetric Fistula
RVF	Recto-Vaginal Fistula
SBA	Skilled Birth Attendants
VVF	Vesico Vaginal Fistula
WHO	World Health Organization

ABSTRACT

BACKGROUND: Obstetric fistula although is eliminated in high income countries, it remains prevalent and debilitating condition in many parts of the developing world leaving women with the immediate consequences, such as leakage of urine or feces or both and has been observed since women first began delivering children despite of the fact that it is completely preventable if high quality basic and comprehensive maternal health services are available to all woman during pregnancy and childbirth by a well-trained and knowledgeable skilled birth attendants.

OBJECTIVE: The objective of this study was to assess knowledge and practice on prevention of Obstetric Fistula among skilled birth attendants in public Health Centers in Addis Ababa**.**

METHODS: Institutional based Quantitative Cross sectional study was undertaken in public health centers in Addis Ababa. A multi staged systematic random sampling technique was implemented to select a total of 548 skilled birth attendants. The data was collected by using self-administered questionnaire prepared in English language from March–April 2016 after ensuring that all requirement of Ethical consideration is fulfilled. The collected data was cleaned, entered and analyzed using SPSS Version 20. Odds ratios with 95 % confidence interval with binary logistic regression model was used to measure the association of dependent and independent variables. Descriptive statistics with frequency and percentages, table's graphs and cross-tabulations was used.

Results: This study revealed that 67% of skilled birth attendants had good knowledge on prevention of obstetric fistula and in-service training related to obstetric fistula (AOR =1.53, 95% CI 1.04-2.25), resource availability (AOR =2.78, 95% CI 1.46-5.28) and service year (AOR =1.90, 95% CI 1.08-3.36) were significantly associated. About 66.2% of skilled birth attendants had good practice. Diploma nurses and degree nurses were less likely to have good practice as compare to Diploma midwives. (AOR =0.41, 95% CI 0.23-0.74; AOR =0.29, 95% CI 0.16-0.56) respectively. Pre-service training (AOR =2.19, 95% CI 1.48-3.24), in-service training (AOR =1.59, 95% CI 1.05-2.39), resource availability (AOR =2.85, 95% CI 1.44-5.65), and knowledge (AOR =2.47, 95% CI 1.65-3.68) were other factors independently associated with practice on prevention of obstetric fistula.

Conclusion and recommendation: In conclusion majority of skilled birth attendants were found to have good knowledge and good practice towards prevention of Obstetric Fistula. Obstetric Fistula should be adequately addressed for health students during their pre-service training and training regarding Obstetric Fistula and related issues should also be given for skilled birth attendants.

Key word: Obstetric Fistula Prevention, Skilled birth attendants.

1. Introduction

1.1. Background

Obstetric Fistula (OF) is defined as an artificial opening between the vagina and the bladder / vesico-vaginal (VVF), or between the vagina and the rectum /recto-vaginal fistula(RVF) through which urine or feces leak uncontrollably(1).In Sub-Saharan most obstetric fistula follows prolonged and obstructed labor, usually associated with Cephalo -pelvic disproportion, whereby the baby's head presents with diameters whose dimensions are larger than the proportions of the pelvic canal through which it passes (2).OF although is eliminated in high income countries, it remains prevalent and debilitating condition in many parts of the developing world leaving women with the immediate consequences, such as leakage of urine or feces or both .It has been observed since women first began delivering children despite of the fact that it is completely preventable if high quality basic and comprehensive maternal health services are available to all woman during pregnancy and childbirth by a well-trained skilled birth attendants(3).

The WHO estimated that more than 2 million young women throughout the world live with untreated OF, and 50,000 and 100,000 new women are affected each year among which, 100,000 to 1,000,000 live in Northern Nigeria, over 70,000 live in Bangladesh and 26,000 to 40,000 live in Ethiopia. A prospective study conducted in 6 sub- Saharan also revealed that an overall OF incidence rate of 10.3 per 100,000 deliveries (4).It is also identified that the occurrence of OF is associated with delays in seeking or receiving appropriate basic emergency obstetric care which is provided by skillful midwives and nurses (4).Prolonged delay in obtaining adequate emergency obstetric care relates to the three contributing factors to obstetric complications: a delay in deciding to seek care, a delay in arriving at a suitable health facility, and a delay in receiving appropriate care and same three factors relate to the formation of genitourinary fistulae because the problem of pressure necrosis does not occur when obstructed labor is identified & referred by midwives/nurses in a timely manner(5).

Despite the fact that obstetric fistula is preventable very little has been done to address the issue, for every woman who acquires an obstetric fistula, there are undoubtedly many that lose their babies and untold numbers of others who die; therefore, the issues of causation and prevention of OF are closely intertwined (6).

1.2. Statement of the problem

Obstetric Fistula is a life-altering birth injury caused when the presenting fetal part continually compresses the birth canal tissues, bladder base, urethra, or sometimes rectum, causing ischemia and once occurred, the difficulty fistula patients experience is enormous and unbearable, despite the fact very little has been done to address the issue(2).Typical fistula patients in Ethiopia are young peasant girls who are married in their early teens to farmers with little or no education. Since they are poorly educated they have no access to any health care during childbirth and often helped by women of the village at home, and deliver a dead baby after being in labor for days(5).

Obstetric fistula although, still remains prevalent and debilitating condition in many parts of the developing world such as Ethiopia where the national prevalence data indicate that for every 1000 women in the reproductive age group (15–49 years) there are 2.2 fistula patients, making more than 26 000 cases awaiting for repair(3,4,7). Reports from Kenya and Nigeria also show that about one delivery per 1000 results in OF and that of Ghana identified obstructed labor is a cause of fistula in 91.5% of cases and difficult gynecological surgery in the remaining 8.5% of cases and approximately 53% of these women were under 25 years of age, and 43% developed a fistula during their first delivery(7).

The potential consequences for women who suffer from fistula are social, emotional and physical. There is limited evidence of an increased risk of depression, that results either from the fistulae itself or from the prolonged or obstructed labor, and the most obvious sequala being incontinence, either urinary, fecal or both that is linked with social and economic exclusions, which in turn lead to high risks of depression, social stigma and marginalization from their families and communities resulting in suicide(3,8,9) .

Many factors are associated with occurrence of Obstetric fistula such as Access to a health institution chiefly because of the long distances to reach care, poor transportation networks, lack of money, misconception because parturition is regarded as something that can be managed at home, and studies show that primi parity had the strongest and most consistent association with longer duration of labor, urethral damage and vaginal scarring or obliteration(1). Additional risk factors for obstetrical fistula commonly reported include, place of birth and presence of skilled birth attendant, the duration of labor and the use of partograph, lack of prenatal care, early marriage and young age at delivery, older age and

lack of family planning, most of which are preventable provided that midwives and nurses who are the frontline care givers are knowledgeable and skillful. Improving access to timely obstetric care and timely referral is the most important first step that can be taken to prevent fistula from occurring, most of which are related to the knowledge and practice of midwives /nurses working at Health center level(9).

In addition to the Hamlin fistula Ethiopia's activity which has been providing holistic care since 1974, efforts has been made by the Government and other non-government organization to prevent and end Fistula by 2020 since the global campaign to end fistula was launched in 2003 with the aim of reducing fistula cases, by focusing on prevention, treatment and social reintegration. Accordingly the international fistula day (23rd May) was created to draw global attention to obstetric fistula and mobilize support for on-going initiatives in addition to increasing the number of skilled birth attendants as one of prevention strategies (8,10).

Though strategies exist to reduce and prevent Obstetric fistula with simple and effective technology for monitoring progress of labor readily available in health facilities, clinical observation revealed that, it is not being used at all or not correctly used by skilled birth attendants, they prefer to write in words instead of using the partograph and interpreting for decision making during labor and delivery. In addition midwives and nurses keep laboring woman at public health centers longer than the limited time for normal labor and refer after it is too late with full bladder(6**.**

Poor access and weak referral systems by skilled birth attendants are some of the reasons why women choose to deliver at home under unskilled care that result in obstructed labor and Fistulas occurrence. In the study conducted in Kenya it is observed that though about 90% of pregnant women had been seen by a professional provider at least once, a much smaller proportion (41-45%) were attended at birth by a skilled provider (11). Direct prevention can occur during delivery when skilled providers identify women at risk for obstetric fistula and link them with comprehensive emergency obstetric care (CEmONC). Community-based programs can be used for social education to prevent fistula and midwives and nurse can play a key role in the prevention of this tragic obstetric complication (11).Therefore this study will identify gaps by answering the following research questions.

1. Are Midwives and Nurses knowledgeable to prevent Obstetric Fistula?
2. Are midwives and Nurses skillful to implement preventive measures?
3. What factors affect the knowledge and practice to prevention of obstetric fistula?

1.3. Significance of the study

The findings will be used to develop educational strategies to improve knowledge and practice of OF prevention. Further, the findings could be used by Ministry of Health to formulate policies and effective strategies, other nongovernmental organizations involved in maternal health and to health workers to enhance the quality of care. The results from the current study will provide baseline by filling knowledge and skill gap identified through continuous professional development.

Furthermore it may serve in revising the training curriculum for the improvement of midwives and nurses Knowledge and skill on the prevention of Obstetric Fistula.

It will also be vital for the community by improving the preventive practice of Obstetric Fistula.

The findings of this study will also be a baseline for other researchers interested to work on the issue.

2. Literature Review

Vesico-vaginal fistulae (VVF) occur both in Western and in developing countries, where in Western countries most occur as complications of gynecologic surgery or as the result of treatments for gynecologic and other pelvic organ malignancies. The majority of urogenital fistulae presenting to a gynecologic surgeon in a developing country, particularly in sub-Saharan Africa, occur as a complication of prolonged obstructed labor or of operative deliveries done in the context of prolonged obstructed labor. Efforts to prevent urogenital fistulae must undoubtedly focus on the event that usually leads to fistula formation. Obstetric fistula is defined as an abnormal opening between two areas of the body, most often develops during labor and birth when the infant's head descends into the maternal pelvis and cannot pass through, usually because, woman's pelvis is too small or poorly developed, infant is too big or is poorly positioned (10).

Globally, an estimated 600,000 women die every year due to pregnancy related complications, 99% of them in the developing countries and for every maternal death, 30% or more women suffer disabling and humiliating injuries including obstetric fistulae(11). The eradication of obstetric fistula from the affluent world is a significant contribution of modern obstetrics, yet some 3.5 million women in resource-poor nations remain afflicted with this terrible condition where as many as 130,000 new cases occur each year in Ethiopia, Uganda, Niger, Nigeria, Afghanistan, Sierra Leone, and other parts of sub-Saharan Africa and south Asia, because the condition is not fatal and the institutional capacity to provide reconstructive services is so poor, and this leads to increased burden of women with obstetric fistula worldwide every year (12).

2.1. Identifying obstructed/prolonged labor

Obstetric fistula are predominantly caused by a very long, or obstructed labor which can last several days or even, sometimes, over a week before the women receives obstetric care or dies. If labor remains obstructed, the unrelieved pressure of the baby's head against the pelvis can greatly reduce the flow of blood to the soft tissues surrounding the bladder, vagina and rectum. If the mother survives, this kind of labor often ends when the fetus dies and gradually decomposes enough to slide out of the vagina(11).

Literature indicate that among the strategies designed to prevent obstetric fistula is care provided by midwives and nurses who are classified as part of skilled birth attendants during pregnancy, labor as well as the post partum period ,where women can get adequate information on the danger signs, birth

preparedness and complication readiness plan. The care provided, particularly during labor to identify and prevent prolonged labor and obstructed labor, can make the difference between life and death for women and their babies, and can help to prevent OF. Yet only half of the women in developing countries receive assistance from a skilled attendant during delivery (11). The WHO publication, Global action for skilled attendants for pregnant women, sets out the evidence and responsibilities for increasing access to skilled professionals at delivery as well as identifying steps to maximize the capacity and the effectiveness of current staff/skilled attendants in countries where trained professionals are scarce(13).

In addition to this, institutional delivery, skilled attendance at births, emergency obstetric care or quick and safe caesarean sections for women who develop complications during delivery, increasing women's literacy, appropriate age of marriage and of child bearing would reduce the occurrence of fistula. Thus nurses and midwives located in the communities can contribute to promoting health practices to prevent & identify obstetric fistula (14). Prevention comes in the form of access to obstetrical care, availability of skilled birth attendants who support throughout pregnancy who providing access to family planning, promoting the practice of spacing between births, supporting women in education, and postponing early marriage(10).

2.2. Utilization of partograph

As there is limited information on lived experiences among women with fistula, their spouses, relatives and communities with the global end fistula campaign on course, there is need for quality and evidence-based fistula prevention strategies. Accordingly, Presence of provision of affordable, safe and timely interventions for women in need of care, especially for women in deprived settings are among the key strategies(8)WHO recommends that all health care workers use the partograph for all births. When the partograph is routinely used, prolonged and obstructed labor can be recognized before complications occurred and timely transfer to emergency obstetric care, including caesarian section if indicated, is possible(15).

A cross-sectional study conducted in Nigeria to assess knowledge and utilization of the partograph among 165 midwives in two tertiary health facilities, showed 84% of midwives knew what partograph was, 92.7% indicated its use reduces maternal and child mortality. Assessment of utilized partograph charts indicated only 18 (37.5%) out of 48 and 17 (32.6%) out of 52 were properly filled in two

institution where the study were carried out and a significant relationship existed between knowledge of the partograph and its utilization ($\chi 2 = 32.298$. $P < 0.05$) and between midwives years of experience and its utilization ($\chi 2=4.818$, $P < 0.05$). This study also showed that though midwives have good knowledge of the partograph, the utilization in labor monitoring in both centers was poor(16).

Similarly a facility based cross-sectional study in Amhara, Ethiopia, among 292 participants indicated only 26.6% of participants were able to mention 50% or more of components of the partograph, level of knowledge of components of the partograph was very poor, and only 29% of the partoraph papers reviewed was properly filled to monitor the progress of labor. In this study Females, midwives, and those having prior obstetric training were found to have better knowledge of components of the partograph than their counter parts. Despite the significant number of study participants reported that the partograph is useful to monitor labor and make timely decision, their level of knowledge of the partograph and its components was generally poor(17).

2.3. Recognition of Associated factors to Obstetric Fistula prevention

Recognition of the risk factors associated with the occurrence of obstetric fistula is among the knowledge that skilled birth attendants need as women who has problems at the time of labor and delivery have higher chance to develop OF. Studies conducted in western Uganda revealed that 28% of women who developed fistula were younger than 20 years, with antecedent obstructed labor in most cases. The study concluded that if the risks associated with early childbirth were eliminated, the predicted proportion of women who experienced prolonged or obstructed labor would be reduced by 11.2% in Niger, 11.4% in Nigeria, and 13.1% in Tanzania, there by contribute to the reduction of OF(18).

Skilled birth attendants can prevent Obstetric Fistula through early detection and referral to emergency obstetric care facilities those cases with potential cephalo-pelvic disproportion (CPD) and mal-presentation where women likely to experience prolonged/obstructed labor (estimated to cause 76% to 97% of obstetric fistula) which can be prevented by providing timely access to safe delivery (14,18).

2.4.Provision of antenatal Care

The provision of standardized antenatal care services and regularly supervised antenatal visits by skilled attendants who can provide counseling regarding delivery by a trained health professional who

has a linkage with a health facility with services available for emergency obstetric care contribute to the prevention of OF.

Though there is scarcity of studies related to Knowledge and practice of obstetric fistula prevention which is directly related to SBA, the study conducted in Uganda on 44 women with fistula, and 08 key informants including health workers indirectly showed that (93%, n=41) who reported had ever attended ANC with close to half of women with OF (47.7%,n=21) reporting completion of four ANC visits as recommended by MOH/WHO, had limited counseling on Pregnancy, labor and delivery, danger signs and complications was reported. None of these women received information on fistula prevention during ANC, 38 of the 44(86.3%) women with OF started labor and delayed at home and all women with OF labored for over 24hours; 37 of the 44 of women report delivering in hospital and over half report delivery experiences by Caesarean Section. Though there was high ANC attendance with high completion of four ANC visits compared to national level; yet there is poor access to meaningful information from health care providers during ANC follow-up which present critical gaps to implement program intervention by skilled birth attendants (19).

The findings of this study established that most women attended ANC indicate that most women value the need to go for ANC while pregnant but, surprisingly most of them reported low knowledge of the pregnancy and delivery danger signs as well as no knowledge on fistula and how it occur. This points an understanding that there is low knowledge and limited information is passed to mothers while they attend ANC. This is observed when mothers share their experiences of lack of information on the need to deliver under the care of SBA and explain why most of them delayed to seek emergency obstetric care as seen from the many occurrences of mothers who delayed at home even when labor had started (20).

2.5.Access to maternity care

In developed countries, both obstructed labor and OF are medical problems which are largely eliminated in the past because problems with labor may be anticipated during antenatal care and a difficult labor that may become obstructed is no more a problem. In countries with low resource the first and second classic delays are particularly common. Unrelieved obstructed labor, with its 8-disastrous consequences for the woman and her baby is a common complication of home

deliveries(21). Common practices, professional skills, protocols and policies of care should be based on scientific evidence and regularly updated.

All the health professionals involved in peri-natal care should be trained to work in strict and open interdisciplinary collaboration. Maternal and peri -natal care should be able to satisfy the physical, emotional and psychosocial needs of mothers, newborns, fathers and families in a holistic approach. Pregnancy and birth are normal, physiological events, and in order to be implemented, perinatal care interventions have to be centered on the information, motivation and participation of the whole family and local community.

2.6. Health institution set-up and supplies

In most health care institution in developing countries OF and prenatal deaths in addition to other complication of child birth follow absence of adequately trained Midwives/Nurses, breakdowns in infrastructure such as lack of potable water, lack of electricity, and lack of a functional autoclave are all too common and unavailability of surgical supplies, family members are commonly sent to buy surgical gauze, gloves, and suture lack of an adequate blood bank and anesthetic services are almost the norm (2).

The immediate cause of obstetric fistula is one of the leading causes of maternal illness and death in Sub-Saharan Africa and South Asia where women are not attended by skilled birth attendants, as a result obstructed labor occurs in an estimated 5% of pregnancies and accounts for an estimated 8% of maternal deaths(22).About 30% of women over age 45 in developed nations are affected by obstetric fistulae and is much lower where health institutions who can grant women's access to family planning and have skilled attendant teams to assist during childbirth, and discourage early marriage through community mobilization, encourage and provide general education for women (23).

2.7. Early identification and referral of woman with problem

Socioeconomic and cultural factors have an impact on the decision to seek care as communication systems and accessibility of health care facilities contribute to the delay in both phase one and phase two whilst the quality of health care might cause delays in either phase one or phase three. These three steps are not independent, it is clear that expectation of delay in transport, lack of staff or low quality of the care provided will affect the decision to seek health care. The third delay is the most crucial to

address in the work of improving maternal health. Improving the two first phases would be useless without well-functioning health care facility (2, 14) .Fistula prevention also involves many strategies to educate local communities about the cultural, social, and physiological factors and other conditions that contribute to the risk for Obstetric fistulae. One of these strategies involves development and dissemination of communication materials regarding awareness of preventive measures. Prevention of prolonged /obstructed labor and fistulae should preferably begin as early as possible in each woman's life through utilization of available resources. In most cases simple and effective technology for monitoring progress of labor is readily available in health facilities but which is either not used at all or not correctly used(24).

2.8. Conceptual framework

This conceptual framework is developed after extensive review of different literatures and shows association between different factors to knowledge and practice, factors like health centers setup supplies, socio-demographic characteristics, and continuous professional development to obstetric fistula prevention by skilled birth attendants.

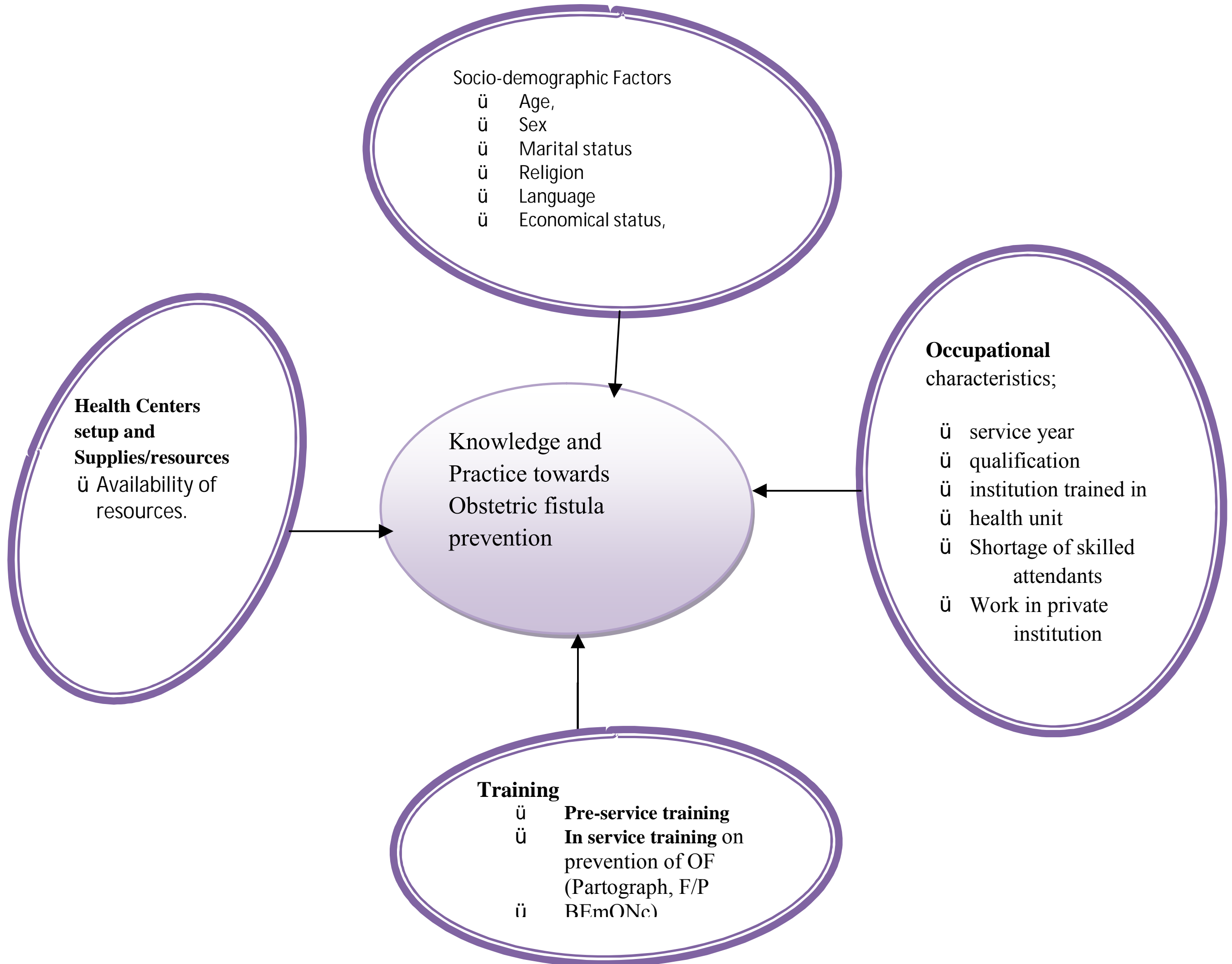

Fig1 .Conceptual framework showing the linkages of knowledge and practice on Obstetric Fistula prevention and associated factors

Socio demographic characteristics, availability of resources, training and shortage of skilled attendants directly influence the knowledge and practice on prevention of OF among skilled birth attendants.

3. Objectives

3.1. General Objectives

- To assess the Knowledge and practice of obstetric Fistula prevention among skilled birth attendants in public health centers in Addis Ababa

3.2. Specific objectives;

- To identify the Knowledge of skilled birth attendants on the prevention of obstetric Fistula.
- To identify the practice of skilled birth attendants on the prevention of obstetric Fistula.
- To determine factors affecting knowledge and practice of skilled birth attendants on obstetric fistula prevention.

4. Methods and materials

4.1. Study area

The study was conducted in public health centers in Addis Ababa (AA) which are providing delivery services during the data collection period. According to DHS, AA is the capital city of Ethiopia, with the population size of over 3,101,896 and annual growth rate of 2.1%. Among the total population 2.4%women are expected to be pregnant annually. The city is composed of ten sub cities and 116 woredas. There are 93 public Health Centers located under AA administrative health office where 771 midwives and 2605 nurses with Diploma /Bsc making a total of 3376 in addition to other health professionals.

4.2. Study design:

An Institutional based quantitative cross-sectional study was conducted

4.2.1 Source population

All midwives and nurses who are employed and currently working in public Health Centers located in Addis Ababa.

4.2.2. Study population

All midwives and nurses who are currently working in 16 selected public Health Centers in Addis Ababa, and fulfill the inclusion criteria.

4.3. Eligibility criteria

4.3.1. Inclusion criteria

Midwives and nurses who have worked for at least six months in public health centers located in Addis Ababa and mentally stable were included in the study population.

4.3.2. Exclusion criteria

Midwives and nurses who have worked less than six months and were not volunteer to participate in the study are excluded.

4.4. Sample size determination

The sample size was estimated using a single population proportion formula. Since there is no previous study done in the area which can estimate knowledge and practice of health professionals on prevention of obstetric fistula a prevalence level that can estimate maximum sample size (50%), marginal error (d) 0.05, with 95% confidence interval certainty and alpha error 0.05 was considered. Based on these assumptions, a total sample size was calculated by adjustment formula;

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

n=Sample size,

z = Level of confidence = 1.96

d = Marginoferror = 0.05

Previous study Prevalence level is not available p taken as 50% = 0.5

$$n = \frac{(1.96)^{2} \times 0.5(1-0.5)}{(0.05)^{2}},\quad n = 384$$

Since N is less than 10,000(N=3376) Adjustment formula was used

n = n/(1+n/N) = 384(1+384/3376) = 344

344x10%=34 (non response rate)

344+34=378

As the sampling technique is multi staged, design effect was considered

378 x 1.5 =-567 Therefore, the final sample size n was = 567

4.5. Sampling procedures

Public health centers in 10 Sub-cities located under Addis Ababa city Administrative health bureau which give delivery services were listed. To generalize the finding from the sample population to the reference population a multistage sampling method was used.4 sub-cities were selected randomly by lottery method and from each sub-city 4 Health Centers were chosen randomly. The sample size for each Health Center was allocated proportionately to their size. The study participants, fulfilling the inclusion criteria were given self-administered questionnaire by simple random sampling using list of staff Roster.

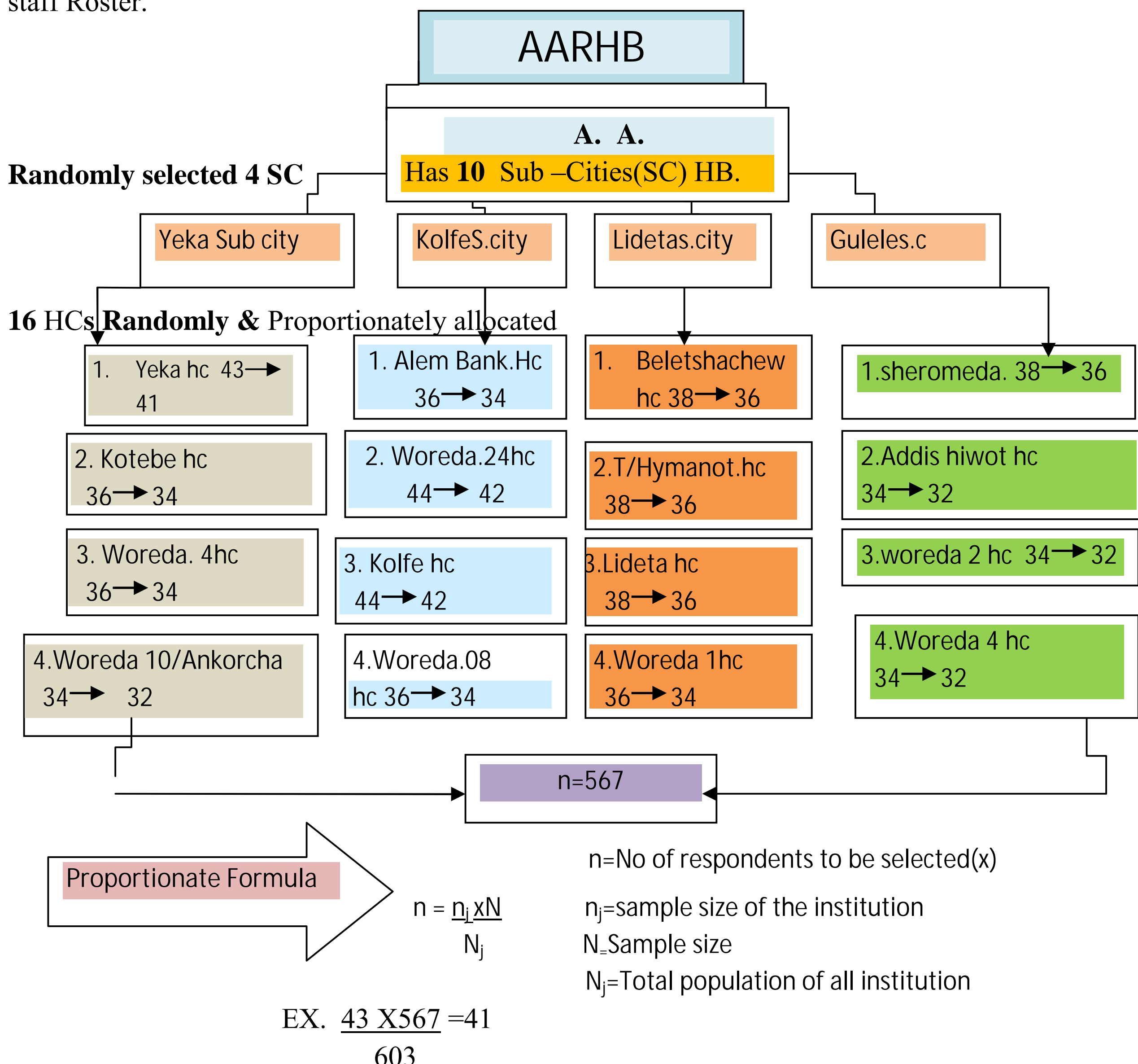

Fig.2 Schematic presentation showing multistage sampling procedure

4.6. Data Collection tools

The data collection tool was adapted from Prevention and Management of Obstetric Fistula: A Curriculum for Nurses and Midwives 2012, East, Central, and Southern African Health Community (ECSA-HC) and Engender Health/Fistula Care. The questionnaire was prepared in English and no need of translating to Amharic, since SBA basically trained in English. It has three parts, the first contain socio-demographic information including professional qualifications. The second part of the questionnaire contained variables to assess the knowledge of the causes and predisposing factors to obstetric fistula. Third and the final part of the questionnaire were about the practice of the participants. In addition 5 previously recorded partograph were taken from each health centers and assessed for its completeness with the correct components.

4.7. Data collection procedure

Data was collected using structured self-administered questionnaire administered to the sampled SBAs working in the sampled health centers. Four trained nurse students and two BSC Nurse Supervisors participated in the data collection procedure.

4.8. Data quality Assurance

Before starting the actual survey, the questionnaire was pre-tested on 5% of 567 (28 respondents) woreda 23 Health center located under Nefassilk Lafto subcity two weeks before the starting the actual data collection. This health center was not included in the actual study and experts were consulted to make necessary amendment after the pretest. One day training was given for data collectors to familiarize with the objective of the study, the content of the instrument and confidentiality issues. Data collectors were supervised at each site throughout the course of the data collection, regular meetings were held between the data collectors and the principal investigator together in which problematic issues arising were amended. The collected data was reviewed and checked for completeness before data entry; the incomplete data were discarded. Finally, data was cleaned and entered to statistical software for analysis.

4.9. Variables of the study

4.9.1. Dependent variable

- Knowledge on prevention of obstetric fistula
- Practice on prevention of obstetric fistula

4.9.2. Independent variables

Socio demographic characteristics:

Age, sex, marital status, religion, language, income

Occupational characteristics;

Professional qualification, Service year, Institution trained in, Health unit, Shortage of skilled attendants, work in private institution.

Training

Pre-service training, in service training on prevention of Obstetric Fistula (Partograph, F/P BEmONc)

Health centers setup and Supplies

Availability of resources

4.10. Data analysis

Data were coded, entered and analyzed using SPSS version 20. Descriptive statistics with frequency and percentages, table's graphs and cross-tabulations were used. In addition, logistic regression statistical models were used for analysis and to see the relationship between dependent and the independent variables. P-values ≤ 0.05 was used to identify associated factors.

4.11. Operational definition

Knowledgeable; the average number of knowledge questions that respondents answered correctly were calculated and those who scored the mean or above were considered as knowledgeable.

Good Practice; the average number of practice questions that respondents answered correctly were calculated and those who scored the mean or above were considered to have good practice.

Completed Partograph- is when contractions, cervical dilatation and descent of fetal head are found charted correctly during the observation of previously used partograph by SBA.

Public health centers; Health institutions established to provide basic Maternal and child health care in addition to other public health services.

Skilled birth attendants; In this study skilled birth attendants are Midwives and Nurses who are formally Trained, Registered and licensed with a qualification of Diploma or Bsc degree.

4.12. Ethical consideration

The research proposal was presented to Addis Ababa University**,** School of Allied health Science College Department of Nursing and Midwifery for Ethical clearance. A formal letter was received by the investigator from the department and was given to AARHB with briefing the objectives of the study. Permission letter from AARHB was submitted to the selected sub cities and then to the Health centers to inform the responsible bodies in order to carry out the intended research. Before the data collection the respondents were informed about the purpose of the study and the importance of their participation in the study which was followed by formal written consent. Participants were informed that all confidentiality will be maintained and have right to withdraw at any stage and have the right to skip question or questions that they are not clear to answer fully or partially and also to stop at any time if they want to do so. After assuring the confidentiality of the information given by each respondent and obtaining informed consent from the study subjects, data collection was started under strict privacy of the participants.

4.13. **Dissemination and utilization of result**

This study upon completion will serve as resource material for researchers, managers and policy makers. The final copy of this study will be given to Department of Nursing and Midwifery, Addis Ababa University, Besides, FMOH, AAFH, AARHB, NGOs, Midwifery associations and organizations working around maternal health and on Obstetric fistula prevention and treatment. In addition, this finding will be presented at the appropriate meetings, seminars, workshops and published in scientific journals.

5. Result

5.1. Socio demographic characteristics of respondents

A total of 548 skilled birth attendants in public Health Centers in Addis Ababa were surveyed with 96.6% response rate. Nearly three quarters of respondents were females 404(73.7%). Majority of the respondents about 389(65.5%) were aged between 25-34 years while 97 (17.7%) were younger than 25 years. The mean age of the study participants was 29 ±6.2 years. Among the total respondents 229(41.8%) were married, 390(71.2%) were orthodox Christians. **Table 1.**

Table 1: Socio demographic characteristic of skilled birth attendants in (n=548) selected public health centers in Addis Ababa, Ethiopia, March 2016

Variables	Category	Frequency (n)=548	Percent (%)
	< 25	97	17.7
Age in year	25-34	359	65.5
	35-44	68	12.4
	>44	24	4.4
	Total	548	100
Sex	Male	144	26.3
	Female	404	73.7
Marital status	Single	304	55.5
	Married	229	41.8
	Separated/divorced	15	2.7
Religion	Orthodox	390	71.2
	Islam	41	7.5
	Protestant	101	18.4
	Other	16	2.9
Language	Amharic only	366	66.8
	Amharic and Oromifa	114	20.8
	Amharic and Tigrigna	49	8.9
	Amharic and other	19	3.5
Income	<1000	43	7.8
	1000-2499	329	60.0
	2500-3999	99	18.1
	≥4000	77	14.1

5.2. Occupational characteristics of respondents

Among the total respondents about 134(24.5%) and 65(11.9%) had BSc degree in nursing and midwifery respectively. whereas majority, 228(41.6%) and 114(20.8%) had Diploma in nursing and midwifery respectively. More than half (56.9%) of the respondents reported that they were trained as a midwife or nurse in government universities and colleges. Among all skilled birth attendants 124(22.6%) were working in delivery unit during the time of data collection, while 109(19.9%) in OPD, 89(16.2%) in ANC, 55(10.0%) were working in family planning unit. About one fourth (25.2%) of the respondents were working also in private health institution. Among all, 228(41.6%) had two to five years of service while 131(23.9%) had less experience. **Table 2**.

Table 2: Occupational characteristic of skilled birth attendants in (n=548) selected public health centers in Addis Ababa, Ethiopia, March 2016

Variables	Frequency (n)=548	Percent (%)
Qualification		
Midwife diploma	114	20.8
Midwife degree	65	11.9
Nurse diploma	228	41.6
Nurse degree	134	24.5
Masters	7	1.3
Institution trained in		
Government	312	56.9
Private	228	41.6
Other	8	1.5
Health unit		
ANC	89	16.2
Delivery	124	22.6
Family planning	55	10.0
Under five	58	10.6
OPD	109	19.9
ART	16	2.9
TB	9	1.6
EPI	21	3.8
Other	67	12.2
Working in private institution		
Yes	138	25.2
No	410	74.8
Service year		
< 2 years	131	23.9
2-5 years	228	41.6
6-10 years	114	20.8
>10 years	75	13.7
		Continued to next page

Pre-service training related to prevention of obstetric fistula		
Yes	328	59.9
No	220	40.1
In-service training related to prevention of obstetric fistula		
Yes	216	39.4
No	332	60.6
Resources available to implement care for pregnant/laboring women		
Yes	500	92.2
No	48	7.8

5.3. Knowledge of respondents towards prevention of obstetric fistula

On the overall assessment of knowledge of skilled birth attendants 367(67.0%) revealed to have good knowledge towards prevention of obstetric fistula. Most of the respondents, 500 (91.2%) knew normal labor lasts less than 24 hours. Among respondents 508(92.7%) knew use of partograph during labor prevents occurrence of obstetric fistula. Early marriage is reported as contributor to obstetric fistula by 492(89.8%) of respondents while child hood malnutrition mentioned by 354(64.9%). Use of family planning is known to be a preventable factor by 420(76.6%). Table 3

Table 3: Knowledge of skilled birth attendants towards prevention of obstetric fistula in (n=548) selected public health centers in Addis Ababa, Ethiopia, March 2016

Variables	Frequency(n)=548	Percent (%)
Mention at least one cause of obstetric fistula		
Yes	540	98.5
No	8	1.5
How long does normal labor last		
Less than 24 hours	500	91.2
More than 24 hours	48	8.8
Early identification of obstructed labor at health centers prevent obstetric fistula		
Yes	463	84.5
No	85	15.5
Partograph is a good tool to monitor labor progress		
Yes	521	95.1
No	27	4.9
Use of Partograph prevents obstructed labor		
Yes	508	92.7
No	40	7.3
Rehydration with intravenous fluid is useful to prevent obstetric fistula		
Yes	320	58.4
No	228	41.6
Younger age is a factor to develop obstetric fistula		
Yes	421	76.8
No	124	22.6
Early marriage contributes to obstetric fistula		
Yes	492	89.8
No	56	10.2
Childhood malnutrition contributes to obstetric fistula		
Yes	354	64.6
No	194	35.4
Use of family planning prevent occurrence of obstetric fistula		
Yes	420	76.6
No	128	23.4
Access to maternity service by skilled birth attendants prevent obstetric fistula		
Yes	512	93.4
No	36	6.6
Midwives/nurses have a role to prevent obstetric fistula		
Yes	527	96.2
No	21	3.8
Insertion of Foley catheter following obstructed labor prevent obstetric fistula		
Yes	441	80.5
No	107	19.5
Overall knowledge status		
Knowledgeable	367	67.0
Not knowledgeable	181	33.0

5.4. Practice of respondents towards prevention of obstetric fistula

Overall 363(66.2%) were found to have good practice towards prevention of obstetric fistula. Majority, 491(89.6%) had implement birth preparedness and complication readiness plan for pregnant women while 493(90.0%) had health education session to raise women's awareness on birth preparedness and complication readiness. 438(79.9%) report that they use partograph to monitor labor. Among 110 respondents who reported not to use partograph 30(27.3%) reported that it is not available while 24(21.8%) reported that they lack the knowledge to use partograph. Only 132(24.1%) of respondents advise laboring woman to empty her bladder every two hours. **Table 4**

Table 4: Practice of skilled birth attendants towards prevention of obstetric fistula (n=548) in selected public health centers in Addis Ababa, Ethiopia, March 2016

Variables	Frequency (n=548)	Percent (%)
Implement birth preparedness and complication readiness plan for pregnant women		
Yes	491	89.6
No	57	10.4
Have health education session on birth preparedness and complication readiness		
Yes	493	90.0
No	55	10.0
Used partograph to monitor labor		
Yes	438	79.9
No	110	20.1
If no why		
Lack of knowledge	24	21.8
Time consuming	13	11.8
Not available	30	27.3
No enforcement	13	11.8
Not working in labor ward	12	10.9
Other	18	16.4
Identify women at risk to develop obstetric fistula		
Yes	474	86.5
No	74	13.5
How often do you advise a laboring woman to empty her bladder		
Every one hour	236	43.1
Every two hour	132	24.1
Every four hour	143	26.1
Once during labor	37	6.8
Overall practice		
Good	363	66.2
Poor	185	33.8

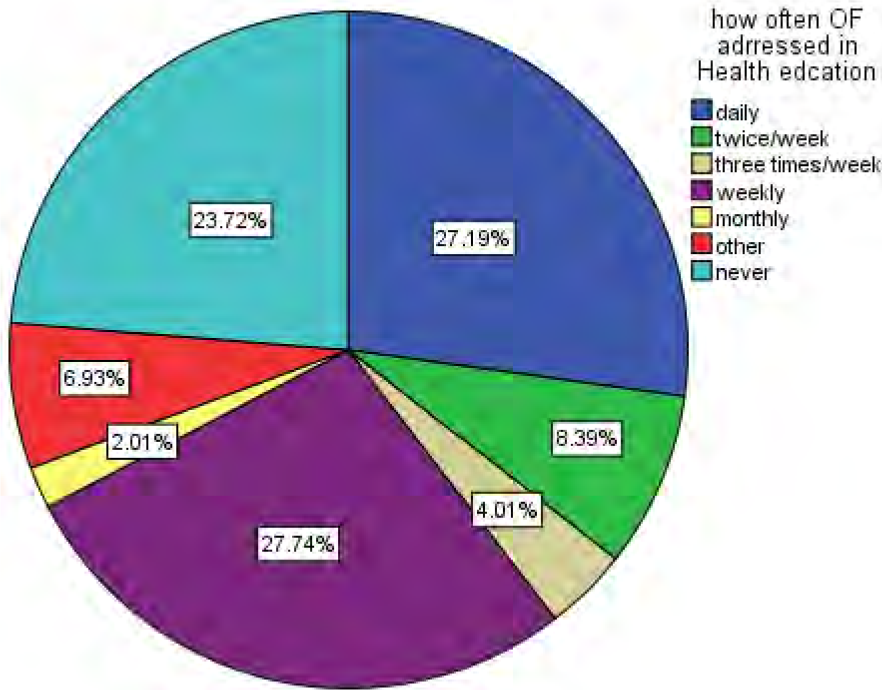

Figure 3: Frequency of health education session on prevention of obstetric fistula by skilled birth attendants in selected public health centers in Addis Ababa, Ethiopia, March 2016

Only 29(5.3%) of respondents have ever referred a women with fistula to hospitals for surgical closer and 18 (62.0%) of them referred the women to Addis Ababa Fistula Hospital.

5.5. Partograph completeness

Among 80 partograph observed from selected public health centers only 18(22.5%) of them were found to be appropriately plotted with cervical dilatation, uterine contraction and decent of the head which are the components to measure the progress of labor.

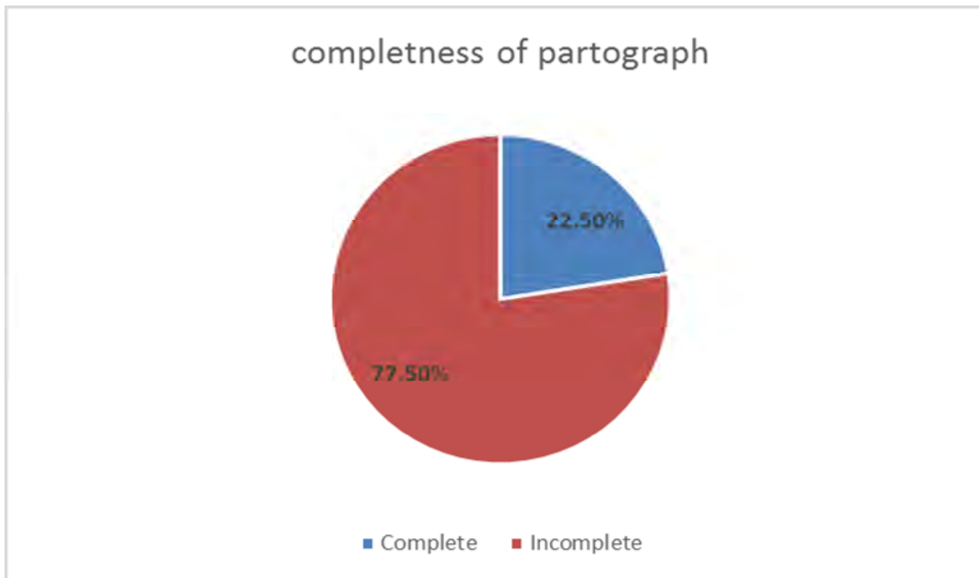

Figure 4: Completeness of partograph in selected public Health Centers in Addis Ababa, Ethiopia, March 2016

From the total 80 partograph observed cervical dilatation were appropriately plotted in 45(56.25%) of the partograph. The result obtained for uterine contraction was also similar to cervical dilatation, 45(56.25%). In 25(31.25%) of the partograph that decent of the head were appropriately plotted.

5.6. Factors associated with knowledge of skilled birth attendants on prevention of obstetric fistula.

On bivariate analysis income (p-value = 0.023), in-service training are related to prevention of obstetric fistula (p-value=0.035), resources availability to implement care for pregnant/laboring women (p-value = 0.001) qualification, (p-value = 0.038), Institution trained in, (p-value = 0.037) service year, (p-value=0.012) were found to be significantly associated with knowledge on prevention of obstetric fistula

Table 5: Bivariate and Multivariate analysis of factors associated with knowledge of skilled birth attendants on prevention of obstetric fistula (n=548) in selected public health centers in Addis Ababa, Ethiopia, March 2016

VARIABLES	Knowledge on prevention of obstetric fistula		COR (95 CI)	P-value	AOR (95 CI)	p-value
	Poor	Good				
In-service training related to prevention of obstetric fistula						
NO	121(36.4)	211(63.6)	1		1	0.03
YES	60(27.8)	156(72.2)	1.491(1.028-2.164)	0.035	1.53(1.043-2.245)*	
QUALIFICATION						
Midwife Diploma	31(27.2)	83(72.8)	1			
Midwife Degree	20(30.8)	45(69.2)	0.84(0.430-1.641)	0.610		
Nurse Diploma	88(38.6)	140(61.4)	0.59(0.364-0.971)	0.038		
Nurse Degree	40(29.9)	94(70.1)	0.878(0.504-1.528)	0.645		
Masters	2(28.6)	5(71.4)	0.934(0.172-5.065)	0.937		
INSTITUTION TRAINED IN						
GOVERNMET	89(28.5)	223(71.5)	1			
PRIVATE	89(39.0)	139(61.0)	0.623(0.434-0.0895)	0.011		
OTHER	3(37.5)	5(62.5)	0.665(0.156-2.842)	0.582		
SERVICE YEAR						
<2 YEARS	48(36.6)	83(63.4)	1		1	0.006
2-5 YEARS	88(38.6)	140(61.4)	0.920(0.590-1.435)	0.713		
6-10 YEARS	27(23.7)	87(76.3)	1.863(1.065-3.260)	0.029	1.901(1.075-3.360)*	0.027
>10 YEARS	18(24.0)	57(76.0)	1.831(0.968-3.466)	0.063		
RESOURCES AVAILABLE TO IMPLEMENT CARE FOR PREGNANT/LABORING WOMEN						
NO	24(55.8)	19(44.2)	1		1	0.002
YES	157(31.1)	348(68.9)	2.800(1.490-5.261)	0.001	2.78(1.461-5.288)*	

*Significant at P<0.05

Multivariate logistic regression models were used to examine factors associated with knowledge on prevention of Obstetric Fistula and in-service training related to prevention of Obstetric Fistula, resources availability to implement care for pregnant/laboring women and service year remained to be significantly associated.

Skilled birth attendants who had in-service training related to prevention of Obstetric Fistula were 53% more likely to be knowledgeable as compare to skilled birth attendants who were not trained.(AOR =1.53, 95% CI 1.043-2.245).

As indicated in table 6 below, skilled birth attendants who reported to have resources to implement care for pregnant/laboring women were 2.78 times more likely to be knowledgeable as compare to skilled

birth attendants who reported that resources were not available to implement care for pregnant/laboring women. (AOR =2.78, 95% CI 1.461-5.288).

Similarly skilled birth attendants who had six to ten years of working experience were 1.9 times more likely to be knowledgeable as compare to skilled birth attendants who had less than two years of experience. (AOR =1.901, 95% CI 1.075-3.360).

5.7. Factors associated with practice of skilled birth attendants on prevention of obstetric fistula

On bivariate analysis marital status (p-value = 0.042), income (p-value = 0.119), pre-service training are related to prevention of obstetric fistula (p-value=0.001) in-service training related to prevention of obstetric fistula (p-value=0.001),resources availability to implement care for pregnant/laboring women (p-value = 0.001) qualification, (p-value = 0.0001), Institution trained in, (p-value = 0.001) health unit, (p-value=0.05) and knowledge on prevention of obstetric fistula (p-value=0.0001) were found to be significantly associated with practice on prevention of obstetric fistula.

Table 6: Bivariate and Multivariate analysis of factors associated with practice of skilled birth attendants on prevention of obstetric fistula in(n=548) selected public health centers in Addis Ababa, Ethiopia, March 2016

VARIABLES	Practice on prevention of obstetric fistula		COR (95 CI)	P-VALUE	AOR (95 CI)	P-VALUE
MARITAL STATUS	poor	Good				
SINGLE	89(29.3)	215(66.1)	1			
MARRIED	91(39.7)	138(60.3)	0.628(0.437-0.902)	0.012		
SEPARATED/ DIVORCED	5(33.3)	10(66.7)	0.882(0.475-1.640)	0.737		
INCOME						
<1000	9(20.9)	34(79.1)	1			
1000-2499	111(33.7)	218(66.3)	0.520(0.241-1.122)	0.096		
2500-3999	41(41.4)	58(58.6)	0.374(0.162-0.864)	0.021		
4000-5500	24(31.2)	53(68.8)	0.585(0.243-1.408)	0.231		
PRE-SERVICE TRAINING ON PREVENTION OF OBSTETRIC FISTULA						
NO	101(45.9)	119(54.1)	1		1	0.0001
YES	84(25.6)	244(74.4)	2.465(1.715-3.544)	0.001	2.192(1.481-3.243)*	
IN-SERVICE TRAINING ON PREVENTION OF OBSTETRIC FISTULA						
NO	132(39.8)	200(60.2)	1		1	0.028
YES	53(24.5)	163(75.5)	2.030(1.388-2.968)	0.001	1.585(1.051-2.391)*	
QUALIFICATION						
MIDWIFE DIPLOMA	20(17.5)	94(82.5)	1		1	0.001
MIDWIFE DEGREE	14(21.5)	51(78.5)	0.775(0.361-1.663)	0.513		
NURSE DIPLOMA	90(39.5)	138(60.5)	0.326(0.188-0.566)	0.0001	0.410(0.228-0.738)*	0.003
NURSE DEGREE	59(44.0)	75(56.0)	0.270(0.150-0.488)	0.0001	0.296(0.158-0.555)*	0.0001
MASTERS	2(28.6)	5(71.4)	0.532(0.0096-2.939)	0.469		
INSTITUTION TRAINED IN						
GOVERNMET	85(27.2)	227(72.8)	1	0.001		
PRIVATE	98(43.0)	130(57.0)	0.497(0.346-0.713)	0.0001		
OTHER	2(25.0)	6(75.0)	1.123(0.222-5.674)	0.888		
HEALTH UNIT CURRENTLY WORKING ON						
ANC	20(22.5)	66(77.5)	1	0.050		
DELIVERY	31(25.0)	93(75.0)	0.870(0.457-1.653)	0.670		
FP	25(45.5)	30(54.5)	0.348(0.168-0.720)	0.004		
UNDER FIVE	20(34.4)	38(65.5)	0.551(0.264-1.149)	0.112		
OPD	50(45.9)	59(54.1)	0.342(0.183-0.639)	0.001		
ART	24(35.8)	43(64.2)	0.519(0.257-1.051)	0.069		
TB	1(11.4)	8(88.9)	2.319(0.273-19.66)	0.441		
EPI	9(42.9)	12(57.1)	0.386(0.143-1.048)	0.062		
OTHER	5(31.2)	11(68.8)	0.638(0.198-2.051)	0.450		
RESOURCES AVAILABLE TO IMPLEMENT CARE FOR PREGNANT/LABORING WOMEN						
NO	27(62.8)	16(37.2)	1		1	0.003
YES	158(31.3)	347(68.7)	3.706(1.942-7.073)	0.001	2.848(1.435-5.652)*	
KNOWLEDGE ON PREVENTION OF OBSTETRIC FISTULA						
NOT KNOWLEDGEABLE	89(49.2)	92(50.8)	1		1	0.0001
KNOWLEDGEABLE	96(26.2)	271(73.8)	2.731(1.881-3.965)	0.0001	2.465(1.652-3.678)*	

*Significant at P<0.05

Multivariate logistic regression models were used to examine factors associated with practice on prevention of obstetric fistula and pre-service training related to prevention of obstetric fistula, in-service training related to prevention of obstetric fistula, resources availability to implement care for pregnant/laboring women, qualification and knowledge on prevention of obstetric fistula remained to be significantly associated. Skilled birth attendants who had pre-service training related to prevention of obstetric fistula were 2.2 times more likely to have good practice as compare to skilled birth attendants who were not trained.(AOR =2.192, 95% CI 1.481-3.243).

Skilled birth attendants who had in-service training related to prevention of obstetric fistula were 58.5% more likely to have good practice as compare to skilled birth attendants who were not trained.(AOR =1.585, 95% CI 1.051-2.391). Those skilled birth attendants who reported to have resources to implement care for pregnant/ laboring women were 2.85 times more likely to have good practice as compare to skilled birth attendants who reported that resources were not available to implement care for pregnant/ laboring women.(AOR =2.848, 95% CI 1.435-5.652).

Diploma nurses and degree nurses were found to be 59% and 70.4% less likely to have good practice as compare to Diploma midwifes respectively. (AOR =0.410, 95% CI 0.228-0.738; AOR =0.296, 95% CI 0.158-0.555). In addition, the results of multivariate logistic regression analysis revealed that skilled birth attendants who were found to be knowledgeable on prevention of obstetric fistula were 2.47 times more likely to have good practice than those who were not knowledgeable. (AOR =2.465, 95% CI 1.652-3.678).

6. Discussion

This study revealed that majority of skilled birth attendants working in public health centers in Addis Ababa had good knowledge and practice related to prevention of Obstetric Fistula even though significant number of them lack the appropriate knowledge and skill.

In the current study in-service training is identified as a contributing factor for having good Knowledge and practice; this may be explained by the fact that training would improve the status of knowledge about the area of interest. Similarly those who received training were able to use partograph appropriately than those who did not. This is shown in a facility based cross-sectional study in Amhara, Ethiopia which found those having prior obstetric training to have better knowledge on components of the partograph than their counter parts (17).In this study Females, midwives, and those having prior obstetric training were found to have better knowledge of components of the partograph than their counter parts. Despite the significant number of study participants reported that the partograph is useful to monitor labor and make timely decision, their level of knowledge of the partograph and its components was generally poor(17).

The WHO publication, Global action for skilled attendants for pregnant women, also sets out the evidence and responsibilities for increasing access to skilled professionals at delivery as well as identifying steps to maximize the capacity and the effectiveness of current staff/skilled attendants in countries where trained professionals are scarce(13).

The possible explanation for midwives to have good practice on prevention of obstetric fistula than nurses is firstly, midwives are the most frequently working skilled birth attendants in labor and delivery unit where there is a possibility of implementing the knowledge they have. Secondly, they might have also better chance of getting in-service obstetric training which contributes to Obstetric Fistula prevention. Almost half 49.1% of diploma midwives in the current study reported that they had in-service training but only 33.8% and 35.1% of diploma nurses and degree nurses had the training respectively. Even midwives might have a higher chance of getting more pre-service education and clinical practice related to obstetric fistula prevention than nurses. In the current study also showed this because, 72.8% of diploma midwives had adequately addressed obstetric fistula during their pre-service training while only 53.9% and 59.7% of diploma nurses and degree nurses had the training respectively.

This study also revealed that resource availability is significantly associated to knowledge and practice related to Obstetric Fistula prevention. The reason for this could be absence of material and equipment's including partograph formats, intravenous fluid in some facilities could prevent skilled birth attendants from practicing key intervention to pregnant and laboring women to protect them from prolonged labor and subsequent consequences including Obstetric Fistula. The third delay is the most crucial issue to address in the activities of improving maternal health. Improving the two first phases would be useless without a well-functioning health care facility (2, 14)

Year of experience is found to be significantly associated with the contributing factor to knowledge on prevention of Obstetric Fistula; this might be due to the fact that experienced skilled birth attendants can improve their status of knowledge and practice through informal and formal learning. The other possible explanation is that the more they stay in the profession there is more chance of getting in-service training which contribute to develop their skill and knowledge.

This study showed that only 22.5% of partograph charts observed in public health centers were appropriately plotted with cervical dilatation, uterine contraction and decent of the head which are the components to measure the progress of labor. Similarly a facility based cross-sectional study in Amhara, Ethiopia found that only 29% of the partograph papers reviewed was properly filled to monitor the progress of labor (17). The finding of this study is lower when compared with study done in Nigeria to assess knowledge and utilization of the partograph in two tertiary health facilities, which found that only 37.5%and 32.6% utilized partograph charts were properly filled in two institutions. (16). The reason for this difference could be that the current study is done in primary health care facilities whereas the study done in Nigeria is conducted in tertiary health facilities where more training and more experienced skilled professionals could be available.

7. Strength and limitation

7.1. Strengths

This is the first research done to assess knowledge and practice towards obstetric fistula prevention among skilled birth attendants in Addis Ababa.

The research result will not only fill the existing knowledge gap but also it will encourage others to do similar research in other regions of the country.

The findings and recommendations will also serve as an input for decision making at different level including for the programmers to plan for continues professional development.

7.2. Limitation

Lack of similar studies done in the past despite the efforts done.

8. Conclusion and recommendation

8.1. Conclusion

In conclusion overall 67% of skilled birth attendants were found to have good knowledge and 66.2% had good practice towards the prevention of Obstetric Fistula.

In-service training related to prevention of Obstetric Fistula, resources availability to implement care for pregnant/laboring women and service year of skilled birth attendants were found to be significantly associated with knowledge on prevention of Obstetric Fistula.

On the other hand pre-service training related to prevention of Obstetric Fistula, in-service training related to prevention of Obstetric Fistula, resources availability to implement care for pregnant/laboring women, qualification and knowledge on prevention of Obstetric Fistula were independent associated factors to practice of prevention of Obstetric Fistula.

8.2. Recommendations

Based on the findings mentioned above the following recommendations are forwarded for the followings concerned bodies;

Government and Private universities and medical colleges

Ensure that Topic on obstetric fistula is included in the Curriculum and adequately addressed for health students during their pre-service training in Universities and Colleges.

Ministry of Health and Public Health Center Authorities

Skilled birth attendants should receive training regarding obstetric fistula prevention and related issues during their year of practice in health institutions

Resources necessary to implement care for pregnant and laboring women including partograph, IV fluids, equipments should be made available in all public health centers and SBA working in Labor ward should be enforced to properly utilize Partograph.

Skilled birth attendants with little professional experience should receive more attention through provision of in-trainings related to obstetric fistula prevention and encourage continuous professional development to increase their level of knowledge and practice towards obstetric fistula.

None Government Organizations and professional associations

Should support and contribute to update the knowledge and practice of skilled birth attendants through the provision of in-service training on the topics that contributes to the prevention of Obstetric Fistula.

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Annexes

Annex I. Information sheet

Introduction: Hello, my name is Marit Legesse I am doing a study on knowledge and practice of Obstetric Fistula prevention with the support of Addis Ababa University.

Title: knowledge and practice of Obstetric Fistula prevention among skilled birth attendants in public health centers of Addis Ababa, Ethiopia, 2016.

Purpose of the study: The purpose of the study is to assess knowledge and practice of Obstetric Fistula prevention among skilled birth attendants in public health centers in Addis Ababa, Ethiopia. The study's primarily importance for the researcher will be on getting master degree from Addis Ababa University and information obtained from the study can be used to develop programs and policy.

Procedures: We are going to ask you for information concerning about your demographic background characteristics, as well as other topic related to knowledge and practice of Obstetric Fistula prevention. The Questionnaire will take approximately 20 minutes to complete. There is no right or wrong answers.

Confidentiality: I want to assure you that all of your answers will be kept strictly secret. I will not keep a record of your name or address.

Risks and Benefits of the Study: By participating in this study, you will not receive any direct benefit. However, you will help to increase our understanding towards knowledge and practice of Obstetric Fistula prevention and its associated factors and the result of the study would hopefully serve as an important input to intervention programs that aim at improving women's health by reducing Obstetric Fistula related morbidity and mortality. Your participation in this study will have no risk.

Rights: Your participation in this study is voluntary and you have the right to stop the interview at any time, or to skip any questions that you don't want to answer.

If you need additional information - use the following address;

Marit Legesse : Mob.phone +251911-45-79-08

E-mail: maritlegesse@gmail.com

Annex II Consent Form

I have read the above information, or it has been read to me. I was given the opportunity to ask questions and the question that I have asked have been answered to my satisfaction.

I understand that I have the right to withdraw from the study at any time and can skip questions I am not comfortable to respond. Therefore, after I understand to the level of my satisfaction I agree and consent voluntarily to participate in this study.

Signature of volunteer: ___________________ Date: ____________________________

Signature of Data collector: ________________________ Date: ___________________

Annex III. Questionnaires

No.	Part I Questionnaire on Demographic data	Circle/write your answer below
Q101	How old are you on your last birth day?	Age_______ Completed yrs
Q102	Sex	Male Female
Q103	What is the level of your Professional qualification?	Midwife (Diploma) Midwife first degree/Bsc Midwife ,Masters/Msc Nurse (Diploma) Nurse first degree/Bsc Nurse ,Masters/Msc
Q104	Where did you trained as a Midwife or a Nurse?	Government University/College Private University/College Others specify____________
Q105	In which unit of the health center are you working?	Antenatal clinic/ANC Labor / delivery unit Family Planning unit Under five clinic Outpatient Department Others,specify_____________
Q106	What is your religion?	Orthodox Islam Protestant Catholic Others_____________________

Q107	What is your marital status currently?	Single Married Separated Divorced Widowed Others_____________________
Q108 -	Which local language can you speak?	Amharic only Amharic and Oromifa Amharic and Tigrigna Amharic and Other Language
Q109	What is your Personal income in Birr/month?	<1000.00ETB 1000.00-2499.00ETB 2500.00-3999.00ETB 4000.00-5500.00ETHB >5500.00
Q110	Are you working in another private health institution currently?	1.Yes 2.No
Q 111	How many total years of service do you have?	1.<2yrs 2. 2-4yrs 3. 5-10yrs 4.>11
No	**Part II Questionnaire on Knowledge of Obstetric Fistula prevention**	**Circle your answer below**
201	Do you know what Obstetric Fistula is?	1. Yes 2. No

202	What are the causes of Obstetric Fistula among the followings? (possible to circle more than one answer)	1.Obstructed/prolonged labor 2.Contracted pelvis 3.Obstetric surgery 4. Big baby 5.Others______________
203	How long does normal labor last?	Less than 24 hrs More than 24 hrs. 3.three days 4.No matter how long it takes 5.Other specify___________
204	Does early identification of obstructed /prolonged labor at health center level prevent obstetric fistula?	1. Yes 2.No
205	During your pre-service training did you adequately covered the topic on prevention of Obstetric Fistula?	1.Yes 2.No
206	Partogram is a good tool to monitor labor progress	Yes No
207	Use of partograph prevents obstructed /prolonged labor	Yes No
208	Rehydration with intravenous fluid is useful to prevent obstetric fistula.	Yes No
209	Younger age is a factor to develop obstetric fistula?	Yes No
210	Early marriage contributes to obstetric fistula	Yes No
211	Childhood malnutrition causes Obstetric fistula	Yes No

212	Use of family planning prevent occurrence of obstetric fistula	Yes No
213	Accesses to maternity service by skilled birth attendants prevent obstetric fistula	Yes No
214	Midwives/Nurses have a role to prevent obstetric fistula	Yes No
No	**Part III Questionnaire on Practice of Obstetric Fistula prevention**	**Circle/write your answer below**
301	Do you implement birth preparedness and complication readiness plan for pregnant woman?	1.Yes 2.No
302	If yes, to Q301 above Do you have health education session to raise women's awareness on birth preparedness and complication readiness?	1.Yes 2.No
303	How often do you address Obstetric Fistula Prevention in health education session in your Health center?	a. Weekly b. Twice/week c. Three times/week d. Daily e. Others____________
304	How do you Identify obstructed/prolonged labor	1. Partograph 2. When labor lasts more than 24hrs. 3. If no progress of labor for 18hrs. 4.Other's;_________________
305	Are there resources to implement care for pregnant/ laboring woman?	1.Yes 2.No

306	Have you ever used Partograph to monitor labor?	1.Yes 2.No
307	If no to the Question 204 above, Specify why? (possible to circle more than one answer)	Lack of knowledge It's time consuming Not available No enforcement to do so Others specify____________
308	What do you practice to prevent the occurrence of obstetric fistula during labor?	1.Follow with partograph 2. Keep her bladder empty 3. Fistula has no relation with partograph. 4.Referring woman with Emergency Obstetric cases
309	Can you identify those women who are at risk to develop obstetric fistula?	1.Yes 2.NO
310	How often do you advise a laboring woman to empty her bladder?	1. Every four hrs. 2. Every one hr. 3.once during labor 4. Every two hrs.
311	Have you ever referred a woman with fistula to hospital for surgical closure?	1.Yes 2.No
312	If yes, to Ques. 311 above specify the hospital.	1.To any nearest Hospital 2.To Black line referral hospital 3.To Addis Ababa Fistula hospital 4.Other;___________________
213	Do you find it difficult to make decisions to refer laboring woman with prolonged labor?	1.Yes 2.No

314	If yes to question 209 above, specify why? (possible to circle more than one answer)	Women are not willing to be referred She may not get ready Not sure of her problem Fear in case she delivered on the way 5.other;______________________
315	Have you ever had any in-service training in relation to Obstetric Fistula prevention?	1.Yes 2.No
316	If yes to the above questions, specify from the following	Parthograph BEmoNC F/planning Others_____________

THANK YOU

Assessment of partograph completeness at selected HCs in A.A.

S/No	No. of part ographObse rved/HC	Sub-city/HC	Ut.Contrac.	Decent of head	Cervical dilatation	Complet	Results	
							Complete √	Incompl. X
1.	1.	I/1						
2.	2							
3.	3							
4.	4							
5.	5							
6.	1.	I/2						
7.	2							
8.	3							
9.	4							
10.	5							
11.	1.	I/3						
12.	2							
13.	3							
14.	4							
15.	5							
16.	1.	I/4						
17.	2							
18.	3							
19.	4							
20.	5							
21.	1.	II/1						
22.	2							
23.	3							
24.	4							
25.	5							
26.	1.	II/2						
27.	2							
28.	3							
29.	4							
30.	5							
31.	1.	II /3						
32.	2							
33.	3							
34.	4							
35.	5							
36.	1.	II /4						

37.	2							
38.	3							
39.	4							
40.	5							
41.	1.	III /1						
42.	2							
43.	3							
44.	4							
45.	5							
46.	1.	III/2						
47.	2							
48.	3							
49.	4							
50.	5							
51.	1.	III/3						
52.	2							
53.	3							
54.	4							
55.	5							
56.	1.	III/4						
57.	2							
58.	3							
59.	4							
60.	5							
61.	1.	IV/1						
62.	2							
63.	3							
64.	4							
65.	5							
66.	1.	IV/2						
67.	2							
68.	3							
69.	4							
70.	5							
71.	1.	IV/3						
72.	2							
73.	3							
74.	4							
75.	5							
76.	1.	IV/4						
77.	2							
78.	3							
79.	4							
80.	5							
TOTAL								

Annex IV Declaration

The researcher undersigned declare that this is my original work and has not been presented in this or any other university, and all sources of materials used in this thesis has been fully acknowledged.

I will provide timely progress report to my advisor and seek the necessary advice and approval from my primary advisor's in the course of the research.

Student's Name – Marit Legesse

Signature________________

Date________________

Place –Addis Ababa University College of health science, Department of Nursing and Midwifery

This thesis is submitted for examination with my approval as the university advisor.

Advisor's Name - Sr. Semarya Berhe (BSc, MSc)

Signature________________

Date________________

Place –Addis Ababa University College of health science, Department of Nursing and Midwifery