KNOWLEDGE, PRACTICE AND ASSOCIATED FACTORS OF ACTIVE MANAGEMENT OF THIRD STAGE OF LABOR AMONG OBSTETRIC CARE PROVIDERS AT GOVERNMENTAL HEALTH FACILITIES IN NORTH WOLLO, AMHARA REGION, ETHIOPIA.

BY: - WONDWOSEN MOLLA(BSc)

A RESEARCH THESIS SUBMITTED TO JIMMA UNIVERSITY INSTITUTE OF HEALTH, FACULTY OF HEALTH SCIENCE, SCHOOL OF NURSING AND MIDWIFERY IN PARTIAL FULFILLMENT OF REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE IN MATERNITY HEALTH NURSING.

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JIMMA, ETHIOPIA

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INSTITUTE OF HEALTH, FACULTY OF HEALTH SCIENCE
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BY: - WONDWOSEN MOLLA(BSc)

ADVISORS: -

1. MARTA TESSEMA (BSc, MSc and PhD fellow)

2. ASRESASH DEMISSE (BSc, MSc and PhD fellow)

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Abstract

Background: *World health organization strongly recommend that, every obstetrical provider at birth needs to have knowledge, skills on active management of third stage of labour and use routinely for all women's. However, implementation of this life saver intervention by skilled birth attendants is questionable because of 3% to 16.5% of women will still go on to experience postpartum hemorrhage and also 12.2% of maternal death in Ethiopia is due to postpartum hemorrhage.*

Objective*: To assess knowledge, practice and associated factors of Active management of the third stage of labour among obstetric care providers at the governmental health facilities in North Wollo Zone, Amhara Region, Ethiopia, 2018.*

Methods: *An institution based cross sectional study design was used among obstetric care providers from March 15 – April 15. Multi-stage sampling technique were used to get a total of 254 participants from their health facilities. Data was collected by using self-administered structured questionnaires and observation checklist. Then the data was coded, cleaned and entered into Epidemiological data version 3.1 and exported to statistical package for social science version 23.0 for analyses. Bivariate and multivariable logistic regression model was used to identifying statistically significant associations between dependent and independent variables. The odds ratio at 95% Confidence interval with P-Value 0.05% was computed.*

Result: *A total of 232 obstetric care providers were participated in the study making the response rate of 91.3%. Out of 232 of obstetrical care providers, only 124(53.4%) and 75(32.3%) of respondent had good knowledge and good practice respectively. The knowledge of obstetrical care providers on AMTSL was significantly associated by training [AOR 7.122 (95%CI, (3.032-16.728)], profession [AOR 5.323 (95% CI, (1.479 to19.160)], Age [AOR 6.497(95% CI, 1.580 to 26.713)]and qualification [AOR 0.251 (95% CI, (0.108-0.584)]. Whereas the practice was associated by work experience [AOR 0.206 (95% CI, 0.067-0.635)], Knowledge [AOR (2.986(95% CI, 1.451-6.144)], the presence of assistance during third stage management [AOR 2.045 (95% CI, 1.062-3.936)]and time of uterotonic preparation [AOR 4.695(95% CI, 2.311-9.538)].*

Conclusion and recommendation: *More than half of obstetrical care providers had good knowledge. Whereas only one third of participants had good practice towards active management of third stage of labour. Zonal Health Bureau and health institutions focus on improving the knowledge and practice of obstetrical care providers by giving extensive training, conducting regular supportive supervision and monitoring. Furthermore, birth assistance should be avail with care providers and pre-loaded oxytocin before third stage of labour*

Key words*: Active Management of Third Stage of Labor, Knowledge, Practice, Obstetric Care Providers, postpartum hemorrhage.*

Acknowledgment

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List of Acronyms

AMTSL	Active Management of the Third stage of Labor
AOR	Adjusted Odd Ratio
BEmONC	Basic Emergency Obstetric and Neonatal Care
CCT	Controlled Cord Traction
CEmONC	Comprehensive Emergency Obstetric and Neonatal Care
CI	Confidence Interval
COR	Crude Odd Ratio
EDHS	Ethiopian Demographic Health Survey
EPIDATA	Epidemiological Data Version
EPIINFO	Epidemiological Information
FIGO	Federation International of Gynecology and Obstetrics
ICM	International Confederation of Midwives
IM	Intramuscular
IU	International Unit
IV	Intravenous
OR	Odd Ratio
PPH	Postpartum Hemorrhage
SDG	Sustainable Development Goals
SPSS	Statistical Package for Social Science
WHO	World Health Organization

CHAPTER ONE INTRODUCTION

1.1. Back ground

Active management of the third stage of labour (AMTSL) is a combination of intervention performed by skilled birth attendant designed to facilitate the delivery of the placenta by increasing uterine contraction during the third stage of labor and also used to prevent Postpartum hemorrhage(PPH) by averting uterine atony(1).

According to FIGO-ICM and WHO the usual components of AMTSL are use of uterotonic agent in the first steps, preferably IM 10 IU oxytocin immediately within 1 min of the delivery of baby after ruling out the possibility of second baby to all births. Then applied Controlled cord traction (CCT) with the clamping of the cord within 1-3 minutes after birth is second steps for delivery of the placenta(1,2).

Delayed cord clamping is still recommended for all births to reduce infant anemia especially for preterm births. Early cord clamping (< 1 minute after birth) is only recommended if a neonate is asphyxiated and needs to be moved immediately for resuscitation even for babies born to women living with HIV. Massage of the Fundus is at the last steps of AMTSL (2,3). The revised guidelines by WHO in 2012 reviled that AMTSL is still a best practice, with the use of uterotonic drugs are the most critical element. and also recommend palpation of the fundus parts of uterus until 2 hours every 15 minutes after delivery of baby to assess the uterus tone (2).

PPH is one of the leading causes of maternal death worldwide; it occurs in 25 % of all maternal deaths worldwide(4,5), 34% in Africa and 12.2% in Ethiopia (6,7). The majority of these deaths are preventable by adopting simple, effective, safe strategies such as AMTSL (8,9).

Maternal mortality is sharply decrease by 43% worldwide. AMTSL play an important role in preventing 27% of maternal deaths, 60% of PPH and the use of blood transfusions(10–12). However, about 3% to 16.5% of women will still go on to experience PPH and will require treatment(13). Every pregnant woman may face life-threatening blood loss during delivery. FIGO-ICM strongly recommend that, every obstetrical providers at birth needs to have knowledge, skills, and critical judgment to carry out AMTSL(1).

Even though few studies have been done on the assessment of knowledge and practice of obstetric care providers on AMTSL in Ethiopia showed that there is a wide gap between the knowledge and practice on AMTS(14–17).

1.2. Statement of the problem

The risk of women death from childbirth represents one of the greatest inequities in global health. Currently, maternal mortality is burning issue all over the world with targets to ending this preventable death. However, an estimated a total of 10.7 million women died globally in the past 25 years between 1990 and 2015 due to maternal causes. And also in 2015, an estimated 830 women died every day as a result of pregnancy and childbirth-related complication worldwide(4). In Africa and other developing regions 302 000 women died, from those 201 000 women died in Sub-Saharan Africa(4).

Global targets for ending preventable maternal mortality until 2030, every country should reduce its MMR by at least two thirds from the 2016 baseline, and no country should have an MMR higher than 140 deaths per 100 000 live births (twice the global target)(18). In Ethiopia, the maternal mortality ratio was 412/100.000 live births in 2016(19). This number showed that MMR in our country is six times higher than the baseline which is140 deaths/100 000 live births(18).

PPH is still a main cause of maternal deaths all over the world which accounting for 35% of all maternal deaths (20). Most maternal deaths due to PPH occur in developing countries in settings where there are no birth attendants or where lack the necessary skills of birth attendants and equipment to prevent and manage PPH and shock(3).

PPH also the leading cause of maternal deaths in Ethiopia which accounting for 12.2 % of all maternal deaths. The potential health care coverage of North Wollo zone was 96.9% with 48.8% of institutional delivery at Wolidya town(21). There is no any study regarding to PPH in north Wollo. However, 5.8% of women faced PPH at Dessie hospital of south Wollo(22). Without proper management, PPH can rapidly progress to life-threatening blood loss, often within several hours. Because of this unpredictability and rapid progression, reducing the incidence of PPH, and improving PPH outcome when it occurs remains a challenge.(23).

Most of maternal deaths occurred within the first 24 hours after birth due to PPH: the majority of these problem could be prevented by administered prophylactic uterotonics agent during the third stage of labour and by timely and appropriate management(2). Preventing PPH by AMTSL is the most effective intervention for reducing maternal mortality due to hemorrhage. Routine use of AMTSL by skilled birth attendant at health facilities for all vaginal singleton birth is recommended by the IFGO- ICM (3). And also WHO newly recommended regarding to AMTSL, which can be

used to strengthen and focus the implementation of this life-saving intervention all over the world(2). Since all laboring women are at risk for PPH, all obstetric care providers should be have knowledge and skill regarding to AMTSL intervention to prevent PPH(24).

The fact in the implementation of AMTSL intervention by skilled birth attendants is questionable because the incidence of PPH keeps rising(13). However, studies have identified a gap in the use of AMTSL. In a global survey, it was found that only 16 (43%) of 37 countries investigated included administration of a uterotonic and/or the active management of the third stage of labour in their national health management information systems(6,25). A study done in seven sub-Saharan countries reported that the AMTSL was only implemented correctly in 0.5– 32% of the observed deliveries (26).

In Ethiopia studies shown as a gap in knowledge and practice of skilled birth attendant on AMTSL. For instance, the study conduct in Addis Ababa, only 51% made correct statements and 47% had good practiced (17). Another study in Sidama Zone, showed that, only 37.7% and 32.8% were knowledgeable and skilled to manage AMTSL respectively(14).

Overall evidences showed that there is still poor knowledge, practices and factors that affect this life saving intervention/AMTSL like qualification, sex, Profession, year of graduation, types of training and like(14–17,27–29). Currently, few studies have been done on the knowledge and practice of obstetrical care providers towards AMTSL in Ethiopia and no in the study sitting. Therefore, this study is aimed to assess knowledge, practice and associated factors of AMTSL among obstetric care providers in North Wollo, Ethiopia by addressing different disciplines/ professionals with different types health institution of their work area by adding some variables that important to delivered service appropriately such as the presence of birth attendants during third stage management and time of uterotonic drug.

1.3. Significance of the study

The aim of this study was to assess knowledge, practice and associated factors among obstetric care providers on AMTSL. It will help to understand the knowledge and practice of obstetric care providers toward active management of third stage of labour and associated factors in the study area which might be essential for program managers, Zonal health department and stakeholders in identifying specific strategies to improve obstetric care providers' knowledge and AMTSL utilization.

Increased utilization of AMTSL results in reduced cases of postpartum hemorrhage which directly contribute to the reduction in maternal mortality and morbidity to achieving the SDG. Moreover, it can be used as reference data for the policy makers to develop strategies and guidelines or standards for scaling up the use of active management of third stage of labour.

Moreover, the findings could also be used to serve as a base line for conducting further research on the problem in our country.

CHAPTER TWO LITERATURE REVIEW

In this chapter, literature relevant to the problem from Previous findings was reviewed, analyzed and summarized critically based on the study setting, study design, sample size and context of the study to assess knowledge, practice and associated factors of active management of third stage of labour among obstetrical care providers.

2.1. Knowledge of Obstetric Care Providers on AMTSL

A survey conduct in Iran to provide information on policies for the practice of managing the third stage of labour showed that, 57% of respondent have knowledge on AMTSL. 94% of the responding indicated oxytocin administration, from those 39 % of units used immediately after the baby's birth and 34 % used it after the delivery of the placenta.71% applies early cord clamping and 65% apply controlled cord traction(30).

A cross sectional survey in Nigeria from 299 obstetric care providers to examine the use of AMTSL showed that; 93.3% of the respondents have knowledge on AMTSL as an obstetric intervention while 64% of the respondents correctly identify component of AMTSL. From those 86.6%, 82.9%, 92.9% and 38.1% of providers were mentioned about administration of 10 IU of Prophylactic oxytocin within one minute following the birth of the baby, early cord clamping, delivery of placenta with CCT and Uterine massage after delivery of the placenta every 15 minutes for two hours respectively(28).

Descriptive cross sectional study on 177 midwives in Primary Health Centers of Nigeria to assess the Midwives' Competence on AMTSL showed that; 66.7% of the respondents were highly knowledgeable on AMTSL, 28.2% had moderate knowledge while 5.1% had low knowledge. From those 100% knew injection of oxytocin as a procedure in AMTSL, 91.5% knew about early clamping and cutting of the cord, 84.7% knew control cord traction and 93.2% knew massaging of the uterus(31).

Similarly, study carried out in Tanzania, almost all of the midwives (99%) are familiar about AMTSL intervention. 70.1% of respondent knew about the three main sequential components of AMTSL. In this study, 100% of study subject respond that oxytocin is the first line recommended uterotonic drug, CCT (92%) and (72.4%)uterine massage every 15 minute for two hours. But according to ICM/FIGO AMTSL guideline only 10% of midwives achieved satisfactory standard scores in knowledge(29).

Institution based cross-sectional study conduct in Sudan to assess the Knowledge, skills and identifying barriers to implement AMTSL shows that, from 50 Midwives, majority (84.4%) of midwives are not familiar with the current national treatment guidelines. Moreover,, only 18% of midwives choice Oxytocin as first line uterotonic drug and also 48% of respondent prefer the timing of administration of uterotonic drug was immediately after delivery of Newborn(32).

In Addis Ababa capital city of Ethiopia; from a total 136 study participant, 99.3% of the respondents were aware about AMTSL but only 51.5% of midwives were knowledgeable and also 63.2% were correctly mentioned Components of (17).

According to study conducted in Ethiopia at Hawassa city; from the total of 76 of obstetrics care provider, only 33.3% of obstetric care provider had knowledge about AMTSL. Moreover, 88.6%, 25.5% and 9.8% of respondents knew about oxytocin is at first line Uterotonic drugs, CCT and uterine massage as component of AMTSL respectively. In this study, 86.1%, 81.9% and 62.9% were known the dose of oxytocin is 10 IU, recommended route of oxytocin administration and time of Uterotonic drugs administration respectively(15).

Another study in Sidama zone Ethiopia also showed that from a total 580 study participant, 37.7% obstetrics care providers achieved satisfactory standard scores in knowledge question. Moreover, 58% of study participant mentioned essential components AMTSL. 83% of study subject respond that oxytocin is the first line recommended uterotonic drug but only 11.5% of respondent mentioned administer uterotonic drugs as components AMTSL, (11.2%)uterine massage every 15 minute for two hours and CCT (19.3%)(14).

2.2. Practices of Obstetric Care Providers on AMTSL

An observational study was conducted in Netherlands to investigate the implementation of the ICM/FIGO guideline for active third stage management in daily clinical practice shows that, AMTSL was adequately performed only in 48% of vaginal deliveries. Oxytocin was administered after birth for 98% of deliveries, with the 80% correct dose used. 63% of Controlled cord traction was performed and 93% of uterine massage was performed but only 8% was performed as protocol(33).

Prospective (single blind) study conduct in Nepal to assess of standard of care of AMTSL shows that, from a total 325 laboring women observed during child oxytocin was administered in 99.5% of cases. From those, only 70 % administration carried out within 2 minutes of cases. The authors conclude that 81.9% of case was not ruled out the possibility of second twin before administration

of oxytocin. Moreover, CCT was applied in 50% of women without confirming uterine contraction. While the time interval between the delivery and injection of oxytocin was found to be within 2 min in 70% while the rest of the cases received oxytocin between 3- 9 min. The authors concluded that improvement in the standard of AMTSL is still needed training for providers(34).

As study conducted in six countries of sub-Saharan Africa (Ethiopia, Kenya, Madagascar, Mozambique, Rwanda and Tanzania) shows; from a total of 2317 women observed during child birth, 94% of the women observed were given uterotonics (2043women received oxytocin while 130 of them received another uterotonics). From the women received uterotonics, 1640 (76%) received it within three minutes of the birth. About 377 (36%) of 1037 investigated obstetric care providers had received relevant training in the previous three years on AMTSL(35).

Study conducted in Nigeria shows that, majority of midwives (76%) administer oxytocin within 1 minute after delivery of the baby and 83% were administered oxytocin intramuscularly. only 18% of the midwives practiced controlled cord traction. 42% of the midwives massage the uterus every 30 minutes for 2hours, while 32% of the midwives massage the uterus every 15minutes for 2hours and 24% massage the uterus every 30minutes for 4hours(28).

Another study in Nigeria shows that 78% of midwives have highly practice and the rest 22% have low practice from the questionnaire but during observation time only 41.7% midwives performed the procedure of AMTSL who have highly practice from the questionnaire while 58.3% lowly practice it. About 39% of midwives were provide oxytocin from those 79.7% often give oxytocin on the anterior shoulder; 83.1% of midwives were clamp and cut the cord immediately after delivery, 76.3% indicated frequent delivery of the placenta by CCT and 88.1%of the respondent emptied the uterus immediately after delivery by massaging (31).

Study carried out in Tanzania showed that, Majority of participate performed well on that are considered the three most important components of AMTSL by ICM/FIGO (2003), (i.e. 10 IU of oxytocin (87.4%), CCT (92%) and uterine massage (72.4%)). Additionally, CCT was the most correctly done procedure while most didn't report uterine massage during post care (92.0 % and 29.9 %) respectively. And also 78.2% of respondent was palpates the abdomen After delivering of the first baby and rules out the presence of another fetus before continuing,74% Waits for strong uterine contraction (2-3 minutes) and 50.7% Doesn't wait for a gush of blood. But according to ICM/FIGO of AMTSL guideline only 10% of midwives achieved satisfactory standard scores in knowledge(29).

Descriptive cross sectional study carried out in Egypt (at one University Hospital and Ministry of Health Hospital) to assess the routine management of third stage of labor and to identify gaps that required improving clinical care showed that, from a total 1000 women (500 women in each hospital) observed during child birth, 72.8% of women at University Hospital received AMTSL but only 43.2% of at Ministry of Health Hospital with a highly statistical difference. At the University Hospital, early umbilical cord clamping and cutting was done for 88.8% of case, 92.3% of CCT was applied , placenta and membrane was examined for 84.4% of women and uterine massage every 15 minutes was performed for 97.6% of women, while at Ministry of Health Hospital 85.4% had cutting of the umbilical cord early, 35.2% of CCT was applied, placenta and membrane was examined for 26.6% of women and uterine massage every 15 minutes was performed for 91% of women However, all women received oxytocin at both Hospital(36).

Another study in Sudan also showed that, only 26.7% of midwives are able to use AMTSL. 84% of the respondent were administered uterotonic agent, 50% midwives were applied CCT, Fundal massage immediately after delivery of the placenta was done by 70% of midwives. Moreover, 76% of respondent start to intervene AMTSL from their own experience,20% were from professional training and 4% were from Colleague opinions(32).

Similarly, study carried out in Rwanda to assess the knowledge, Attitudes and Practices of Obstetric Care Providers showed that, 80.4% of the respondent were administered oxytocin, cord traction 40.2%, and uterine massage was reported 43.3%. however only 15.9% of providers practice the AMTSL correctly in all deliveries(37).

In Addis Abeba capital city of Ethiopia; from a total 136 study participant only 77.9%, 89% and 86% of obstetrical providers were administered oxytocin with in the first minute, applied controlled cord traction, and performed uterine massage after delivery of the baby respectively. Moreover, only 47% of midwives applied AMTSL achieved good in skill(17).

In Ethiopia at Hawassa city, only 16.7 % obstetric care providers applied AMTSL correctly. However, 94.4% of obstetric care providers were administered Oxytocin but only 31.9% were provided uterotonic drug within one minute of fetal delivery. Moreover, 65.3%, 47.2% and 18.1% of the participants were examined abdomen to rule out the presence of another baby prior to administration of uterotonic, performed Uterine massage and early clamped of cord respectively. Moreover, Majority (96.1%) of the obstetric care providers were midwives the remaining 3.9%

were health officers. Physicians and clinical nurses were not observed during active management of third stage of labor(15).

Another study conducted in Sidama zone Ethiopia also showed that; from a total 580 study participant, only 32.8% obstetrics care providers were applied correctly AMTSL. Moreover, 81.8% of participants were administered oxytocin with in the first minute, controlled cord traction applied by 89.4%, and 43% performed uterine massage with in the first minute after delivery(14).

2.3. Associated factor of AMTSL

The study conducted in Nepal from obstetrical care showed that providers who took service training are on the right way and highly emphasize to exclude the twin pregnancy before giving oxytocin and also they applied CCT only when the uterus contracts and massage the uterus when it appears(34). Another study conducted in Sudan showed that majority of the midwives practice AMTSL from their work experience rather than professional training. Furthermore, as this study, shortage of staff coverage and the absence of clear guidelines are the hindering factors to implement AMTSL intervention (32).

The study done in Indonesia on AMTSL showed that midwives with less than a year of working experience were more likely (86%) to follow AMTSL standards documents than midwives with more than 15 years of work experience (68%). In this study, nurses were more likely administered oxytocin (78.0%) than doctors (24.1%) and also nurses were more likely (73.8%) to do uterine massage than doctors (56.2%). On the other hand, doctors were more likely (13.1%) to utilize all aspects of AMTLS as per the FIGO and ICM definition than nurses (0.0%)(38).

In Tanzania study showed that there is strong association between midwives who had high knowledge and skills on AMTSL(29). This is similar to the study in Ghana(28). Moreover, midwives who got additional on job training are seven times more likely acquire competence on AMTSL than those who got from midwifery school alone. Moreover Oxytocin and staff shortage were among the leading challenges reported by midwives on the implementing AMTSL(29). This is also similar to the study in Ghana. Furthermore, unable to remember all components of AMTSL and unavailability of guideline in the facility are the reasons for not practicing the intervention(28).

The study in Ghana showed that, there was a significant relationship between the practice and knowledge of midwives on AMTSL to the type of hospital mean that Midwives who working in

the tertiary healthcare facility were more likely knowledgeable and skilled than those from working in the secondary and primary healthcare facilities on AMTSL. Moreover, there was a negative correlation between the age and Religion to the knowledge of the midwives on AMTSL. The authors conclude that; Muslim midwives were less likely to have the knowledge of AMTSL than the Christian midwives(28). Similarly, study done in Guatemala on Active management of third stage of labour reported that birth attendants in district hospitals (100%) are more likely than those working in health centers (66.7%) to follow the AMTSL standards documents(39).

The study carried out in Rwanda to assess the knowledge, Attitudes and Practices of Obstetric Care Providers showed that, there was no statistical difference in the demonstrated knowledge of AMTSL and providers reported practice. The author reported that all three steps of AMTSL 100% practiced by only 6% of participants that answered all questions correctly regarding to AMTSL. Moreover, Among the 71% of providers exposed to EMOC, only 34% of providers answer all three questions correctly and 17% of providers actually reported performing all three steps of AMTSL by 100%. The author conclude that has no significant association between providers who had training on the emergency obstetric care and their specific knowledge and practice of the AMTSL(37).

The study conducted in Nigeria showed that, the hindering factors of implementing AMTSL were lack of an assistant during duty time (23.7%), shortage of oxytocin (20.3%) and noncompliance of patient during the procedure (15.3%) and 14.1% perceived the procedure to be time consuming. Moreover, the authors concluded that the skills and practice of midwives are not congruent with their knowledge of AMTSL(31).

The study conduct in Addis Abeba revealed that, there were significantly associated between qualification of the respondents and knowledge on AMTSL. Interns are 5.5% more likely be knowledgeable than other profession. And also Sex of the participants has statistically significant for practice. Females were 2.56 times more likely associated to good practice than males(27).

Similarly, study conducted in the towns of Finfine area Special Zone of Oromia Regional State of Ethiopia at the public Health Centers showed that, there were significantly associated between the age of the obstetric care providers and their practice on AMTSL and also Male obstetric care providers were 3.7 more likely to be good practiced on AMTSL than female obstetric care providers. Furthermore, Obstetrical providers who took service training were 3.4 times more likely

had good practice on AMTSL than those haven't training on AMTSL. And also obstetrics care providers with adequate knowledge on AMTSL were 3 times more likely to be good in practice than those with inadequate knowledge on AMTSL(16).

The study in Hawassa city showed that, Pre/in-service training is one of the influencing factors for the knowledge and practice of obstetric care providers on active management of third stage of labors. Obstetric care providers who had pre/in-service training were more skill full than non-trained(15). Similarly, the study in Sidama zone reviled that, Profession and year of graduation were factors which associate with knowledge and also Pre/in service training was associated with the practice of obstetric care provider's towards AMTSL(14).

The literature review showed that extensive studies have been done on active management of third stage of labour worldwide. The literatures suggest that there is a wide gap between the knowledge and practice of AMTSL among obstetric care providers all over the world including Ethiopia. A very few studies have been done on the assessment of knowledge and practice of obstetric care providers on AMTSL in Ethiopia and none in North Wollo. Therefore, this study was conducted to assess the current knowledge and practice of obstetric care providers on AMTSL as well as factors affecting to implement this life saving intervention in North Wollo Ethiopia.

2.4. Conceptual frame work

The conceptual frame work is describing the factors that affect the knowledge and practice of obstetric care providers on active management of third stage of labour.

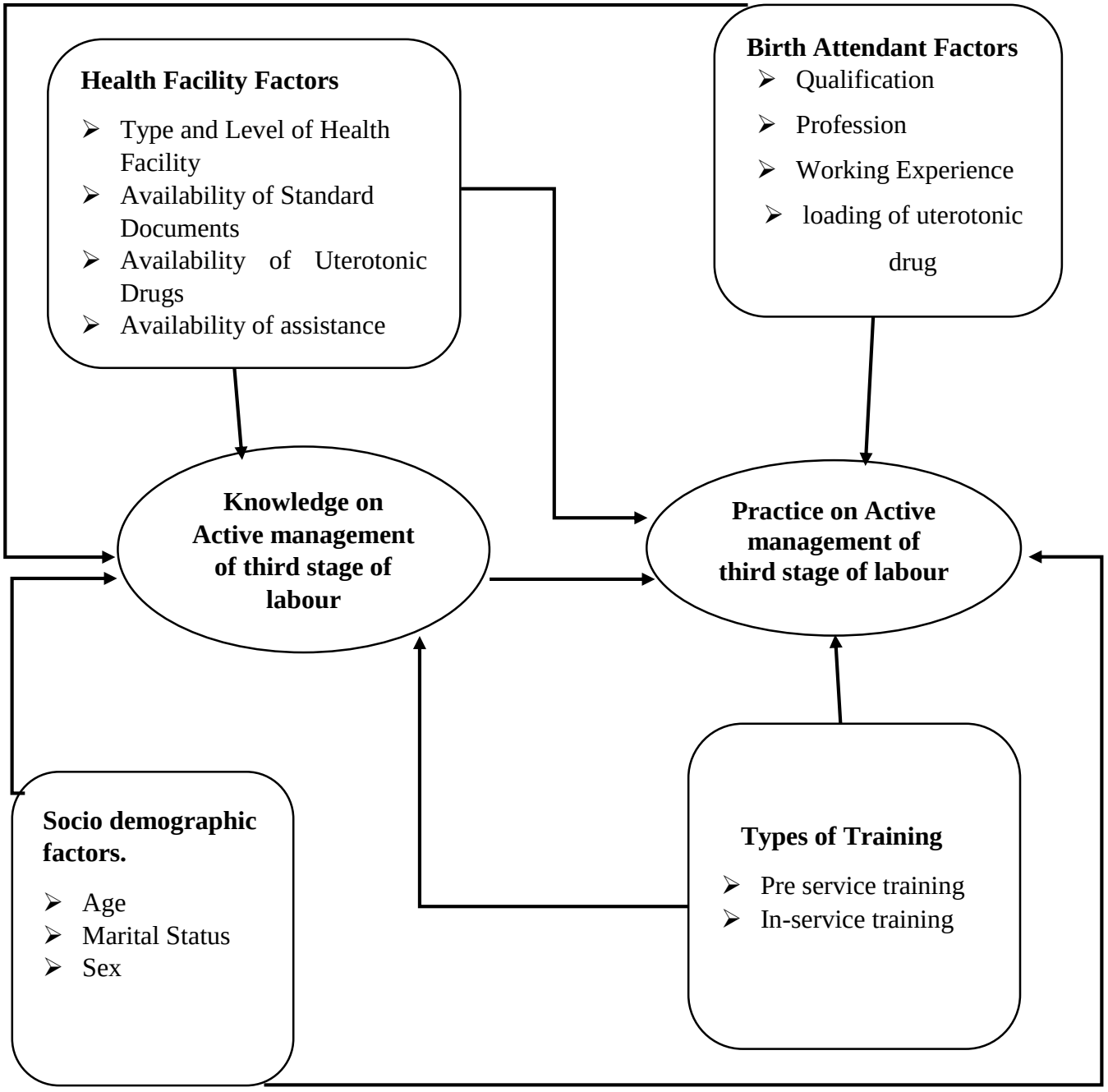

FIGURE 1CONCEPTUAL FRAMEWORK FOR FACTORS AFFECTING THE KNOWLEDGE, PRACTICE OF OBSTETRIC CARE PROVIDERS TOWARDS AMTSL DEVELOPED AFTER REVIEWING DIFFERENT LITERATURES.

Note: ***Dependent Variables:*** **-** in circle box and

Independent Variables: **-** in rectangle box

CHAPTER THREE OBJECTIVES

3.1. General Objective

- To assess knowledge, practice and associated factors of AMTSL among obstetric care providers at the governmental health facilities in North Wollo Zone, Ethiopia, 2018.

3.2. Specific Objectives

- To determine obstetric care providers level of knowledge on AMTSL at the governmental health facilities in North Wollo Zone, Ethiopia, 2018.
- To investigate the actual practice of obstetric care providers on AMTSL at the governmental health facilities in North Wollo Zone, Ethiopia, 2018.
- To identify factors that associated with the knowledge of obstetric care providers on AMTSL at the governmental health facilities in North Wollo Zone, Ethiopia, 2018.
- To identify factors that associated with the practice of obstetric care providers on AMTSL at the governmental health facilities in North Wollo Zone, Ethiopia, 2018.

CHAPTER FOUR METHODS AND MATERIALS

4.1. Study Area and Study Period

This study was conducted at governmental health facilities in North Wollo Zone. The zone is one of the 10 zones of the Amhara Region of northern Ethiopia. which is 521km far from Addis Ababa, the capital city of Ethiopia. It is bordered on the north by South Wollo, on the west by South Gondar, on the north by Wag Hemra, on the northeast by Tigray Region, and on the east by Afar Region. North Wollo zone covers an area of 472.1square kilometers. The zone has 4 urbans and 10 rural districts. The health institutions which are found in the zone include one general hospital, 4 primarily hospital and 65 health centers. In addition, there are 282 health posts/stations. There were 1894 health care providers who were actively worked in the hospitals and health centers of the zone. Among those 743 were obstetrics care providers.

The study was conducted from March 15-April 15 /2018

4.2. Study Design

An Institutional based cross sectional study design was employed.

4.3. Population

4.3.1. Source Population

All obstetric care providers who were working at governmental health facilities in North Wollo Zone.

4.3.2. Study Population

All obstetric care providers who were working at selected governmental health facilities in North Wollo Zone.

4.3.3. Study unit

Obstetric care providers.

4.3.4. Eligibility Criteria

4.3.4.1. Inclusion Criteria

All obstetric care providers who were working in delivery unit and available during data collection period were included in this study.

4.3.4.2. Exclusion Criteria

Obstetric care providers who were working outside of delivery unit was excluded.

4.4. Sample Size Determination

For two outcome variables, Sample size was determined by using single population proportion formula by considering the following assumptions:

$$\boldsymbol{n = \frac{(Z\_\alpha/2)^2 \ * P\ (1 - P)}{d^2}}$$

Where:

n =sample size required for the study

p = the proportion of knowledge (37.7%) and practice (32.8%) on AMTSL in Sidama Zone, South Ethiopia(14).

Z= Zα/2 = 1.96 corresponding to 95% confidence level

d = the margin of error = 0.05

For Knowledge: -

$$\boldsymbol{n = \frac{(1.96)^2 * 0.377(0.623)}{0.05^2}}$$

n=360.9 approximately **361**

For practice

$$\boldsymbol{n = \frac{(1.96)^2 * 0.328(0.672)}{0.05^2}}$$

n=338.7 approximately **339**

However, only 268 obstetric care providers were working at the selected health facilities of Zone. Since, the population is less than 10,000. So the study considered correction formula by taken 361 to get the maximum sample size

$$\mathbf{nf = \frac{ni}{1+(\frac{ni}{N})}}$$

$$\mathbf{nf = \frac{361}{1+(\frac{361}{268})}}$$

n= 153.8 ~ 154

Since, multi-stage sampling technique was used. So the sample size was multiplied by the design effect of **1.5**.

n=1.5*154= 231

For possible none response rate, the final sample size was increased by 10% to:

n =254.

Sample size for the 3rd and 4th objective was determined by using EPINFO 7.

TABLE 1 : SAMPLE SIZE DETERMINATION BY USING EPINFO FOR FACTORS THAT ASSOCIATED WITH KNOWLEDGE AND PRACTICE.

Associated factors for knowledge and Practice	**Assumption**				**Final sample size**
	CI	OR	ratio	% of Outcome in Unexposed	
Access to reading materials	95%	3.1	1:0	31.8	118
Knowledge	95%	3.2	1:0	36.3	110
Qualification	95%	5.5	1:0	60.0	82
sex	95%	5.6	1:0	45.4	62
pre/in service training	95%	8.7	1:0	27.27	38

Therefore, the largest sample size was used **(n=254)**

4.5. Sampling Procedure and Techniques

Multi-stage sampling technique was used. Initially, out of 14 districts of the Zone five districts were selected by using simple random sampling techniques (lottery methods). Namely, Lalibela districts, Wolidya districts, Mersa town, Wadila woreda and Bugina woreda. There were 17 health facilities at the selected districts with the total of 268 obstetrics care providers. All thus health institutions were included in this study. Then the final sample size was allocated proportionally for each health facilities based on their number of obstetrical care providers. Respondents were selected by simple random sampling technique by using the list of the professionals who were working in delivery ward from the human resource management as a sampling frame.

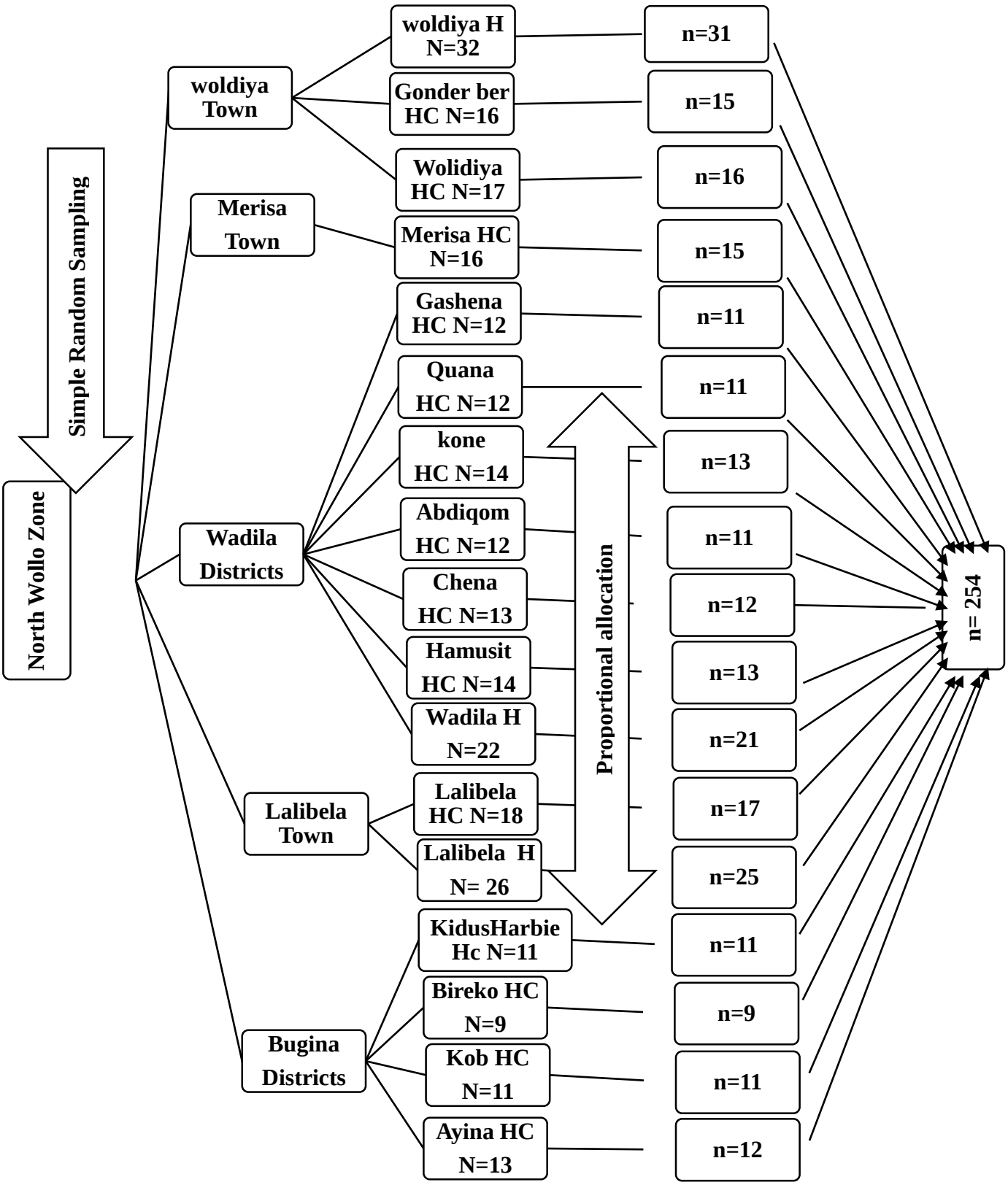

Figure 2 Schematic presentation of sampling procedure of the study.
Note HC- Health Center, H- Hospital, N- total number, n- sample

4.6. Study Variable

4.6.1. Dependent Variable

- Knowledge on AMTSL
- Practice on AMTSL

4.6.2. Independent Variable

- Socio demographic variables
  - ✓ Age
  - ✓ Sex
  - ✓ Ethnicity
  - ✓ Marital status
  - ✓ Religion
- Types of training.
  - ✓ Pre service training
  - ✓ In-service training(Job)
- Health facility factors
  - ✓ Type of health facility
  - ✓ Level of health facility
  - ✓ Availability of standard documents
  - ✓ Availability of uterotonic drugs and
  - ✓ Availability of birth assistance
- Birth attendant factors
  - ✓ Qualification
  - ✓ Profession
  - ✓ preparation /loading of uterotonic drug
  - ✓ Years of experience/ working experience

4.7. Term and Operational Definitions

Active management of third stage of labour (AMTSL) is a combination of intervention. It includes use of a uterotonic agents immediately following delivery of the fetus, delivery of the placenta with controlled cord traction and fundal massage immediately after delivery of placenta.

Obstetric care providers: Certified health personnel who provide care for the woman during labor and delivery such as Midwives, Nurses, Health officers and general practitioner.

Knowledge: The level of knowledge determined by 11 knowledge questions.

Poor knowledge: - participants who scored below the median were considered to have poor knowledge.

Good knowledge: - participants who scored equal or above the median were considered to have good knowledge.

Practice: The level of Practice measured based on series of 16 steps (1).

Good practice: Those who followed 16 steps of the check list correctly while conducting AMTSL

Poor practice: Those who didn't follow at least one steps of the checklist correctly.

4.8. Data Collection Procedure

4.8.1. Data Collection Tools

Data collection tool was adapted from FIGO/ICM guide line(1). It was prepared in English. Self-administered structured questionnaire and observation checks list were used to collect data on participants. The self-administered structured questionnaire consists of the thirty-four (34) items with both open and closed ended questions. The questionnaire was divided into four sections; Socio-demographic characteristics (has 9 items), training factors (7 items), Health facility factors (7 items) and knowledge assessment (11 items). And also the observation checks list contains 16 items.

Internal consistency/reliability of the item was checked by computing Cronbach's alpha. The value of Cronbach's alpha for knowledge assessment (0.84) and practice (0.77).

4.8.2. Data Collection Personnel

Data was collected by 8 data collectors and 4 supervisors who had BEmONC or CEmONC training. Data collectors and supervisor were selected outside of the selected health facilities.

4.8.3. Data Collection Technique

Obstetrical care providers while managing third stage of labor were observed by data collectors via observational checklist. Then self-administered structured questionnaires were distributed for respondents who were participate in observational part of the study. And data collectors were waited to collect the completed questionnaires.

4.9. Data Analysis

The collected data was checked for completeness, consistency and coded. Then entered in EPI data version 3.1. and exported to SPSS version 23.0 for analysis. Descriptive statistic including frequency, percentage was used to describe participants' characteristics, training information, health facility factors, knowledge and practice. Median and standard deviation was used to determine the level of knowledge and practice of respondents. Binary logistic regression analysis was used to identify candidate variables for multivariable logistic regression. Variables that had P- value less than 0.25 were candidate for multivariable logistic regression. Model fitness test was checked by Hosmer and Lemeshow test. The value was 0.869 for knowledge and 0.878 for practice. The odds ratio at 95 CI was computed to measure the strength of association between the outcome and explanatory variables. Variables that had P value less than 0.05 was considered as statistically significant. Finally, the results were presented in the form of texts, tables and graphs.

4.10. Data Quality Assurances

To keep the data quality, standard questionnaire was adapted from ICM and FIGO guidelines. To minimize the effect of personal and professional relationships, observers were selected from outside of the study facilities. The data collectors and supervisors were trained for 02 days before pre-test on the objective, how to use the questionnaires and the checklists to ensure consistency. Pre-test was conducted on 5% of sample size in South Wollo at Dessia hospital and Dessia health centers. Data was collected by obstetric care providers who had BEmONC or CEmONC training.

Moreover, to minimize the effect of observation on provider behavior, providers were assured on data collected anonymous and individual performance would not be reported to their supervisors or shared publically (published reports only refer to aggregate data). Providers were not aware about the contents and items on the checklists. Furthermore, observation of birth attendant while conducted third stage of management was done before distribution of the self-administration questionnaires for care givers.

Data was collected and signed by supervisors, after checking the filed questionnaire for any missing items and correctness. Besides of this there was continuous follow up and supervision by the principal investigator throughout the data collection period and also necessary feedback was provided for supervisors and data collectors. All questionnaires and observation checklists were kept under lock and key for security and confidentiality of obtained information.

4.11. Ethical Consideration

Ethical clearance was obtained from institutional review board (IRB) of Jimma University, institute of health. Formal letter of permission was obtained from Amhara region Health Department, North Wollo Zone Health Department and North Wollo Zone selected District Health Offices. Clear description was provided about the objectives of the study, its procedures. Informed consents was obtained prior to proceeding data collection in the form of written from all obstetric care providers as well as verbal consents was obtained from each mother.

4.12. Dissemination of the Result

The result of research will be disseminated to Jimma university institute of health faculty of health science school of nursing and midwifery, post graduate program and documents will be disseminated to all responsible bodies in the study area. In addition, it will be submitted to Jimma University health science library. And also the findings may be presented in annual scientific meeting and conferences. It will be sent for publication on scientific journals in related fields.

CHAPTER FIVE RESULT

5.1. Socio demographic characteristics of respondents

A total of 232 obstetric care providers were participated in the study making the response rate of 91.3%. Majority of 135(86%) participants were found in age between 25-30 with mean age of 28.7 years and Standard deviation (±SD) of 4.069. Most of 128(55.2%) of them were male, 121(52.2%) were Married, 159(68.5%) were Amhara and168 (72.4%) were Orthodox. Furthermore, most of 87(37.5%) of respondents were midwifery in profession and 145(62.5%) were degree in qualification as in table 2.

TABLE 2:Socio-Demographic Characteristic of Obstetric Care Providers at Governmental Health Facilities in North Wollo, Amhara Region, Ethiopia 2018.

Variable	Category	Frequency	Percent
Age	< 25	49	21
	25-30	***135***	***58.2***
	31-35	34	14.8
	>35	14	6.0
Sex	Female	104	44.8
	Male	***128***	***55.2***
Marital status	***Married***	***121***	***52.2***
	Not married	100	43.1
	Divorced	8	3.4
	Widowed	3	1.3
Ethnicity	***Amhara***	***159***	***68.5***
	Oromo	22	9.5
	Tigre	47	20.3
	Other*	4	1.7
Religion	***Orthodox***	***168***	***72.4***
	Muslim	47	20.3
	Protestant	17	7.3
Profession	General Practitioner	42	18.1
	Health officer	32	13.8
	Midwife	***87***	***37.5***
	Nurse	71	30.6
Qualification	Diploma	54	23.3
	Advanced Diploma	32	13.8
	Degree	***146***	***62.9***
Year of graduation	<2000	1	4
	2000-2005	87	37.5
	>2005	***144***	***62.1***
Work experience	< 12 month	41	17.7
	12-24 month	38	16.3
	25- 36 month	48	20.7
	>36 month	***105***	***45.3***

Other* like Afar, Gurage

5.2. Health Institution and Training information of respondents.

From a total of 232 participates, majority 158(68.1%) of them were working at the health center while the rest 74(31.9%) were working at hospital. About 116(50%) of subjects had reading material that prepared on AMTSL in their work place, 225(97%) of them had favorable delivery ward to conduct AMTSL, almost all 229(98.7%) and 226(97.4%) of them had adequate oxytocin drug and refrigerator in their work place respectively.

From a total of 232 participates, majority 179 (77.2%) of the obstetrical care providers had been trained on AMTSL. Among those 82(45.8%) of care giver had been taken in-service training followed by 63(35.2%) pre service while the rest 34(19%) were trained both pre and in-service training.

5.3. Knowledge of obstetric care provider on AMTSL

To determine knowledge of the obstetric care provider on AMTSL eleven questions were asked based on current WHO and FIGO/ICM joint guidelines on AMTSL as in table 3.

TABLE 3 Knowledge of Obstetric Care Provider on AMTSL at Governmental Health Facilities in North Wollo, Amhara Region, Ethiopia 2018.

Variables	**Categories**			
	Yes	**(%)**	**No**	**(%)**
Know critical element of the AMTSL	99	42.7	133	57.3
Know recommended immediate role of obstetric care providers after delivery of fetus	184	79.3	48	20.7
Know recommended first line uterotonics drug	215	92.7	17	7.3
Know recommended dose of oxytocin	201	86.6	31	13.4
Know recommended route of oxytocin	214	92.2	18	7.8
Know three main sequential components of AMTSL	202	87.1	30	12.9
Know time to administer uterotonics	201	86.6	31	13.4
Know recommended time to clamp the cord	177	76.3	55	23.7
Know the frequency of perform uterine massage over the first two hour	184	79.3	48	20.7
Know of time AMTSL completed	138	59.5	94	40.5
Know harmful practice when performing AMTSL	185	79.7	47	20.3

Out of 232 of obstetrical care providers, only 124(53.4%) of respondent had good knowledge on AMTSL while 108(46.6%) of respondent had poor knowledge on AMTSL.

5.3.1. Knowledge on components of active management of third stage of labour

Out of the total 232 respondents, majority of them 202(87.1%) was answered correctly about the three main sequential components of AMTSL. However, only 99(42.7%) of respondent was answered correctly about administration of uterotonic drug as critical element of AMTSL as figure 3.

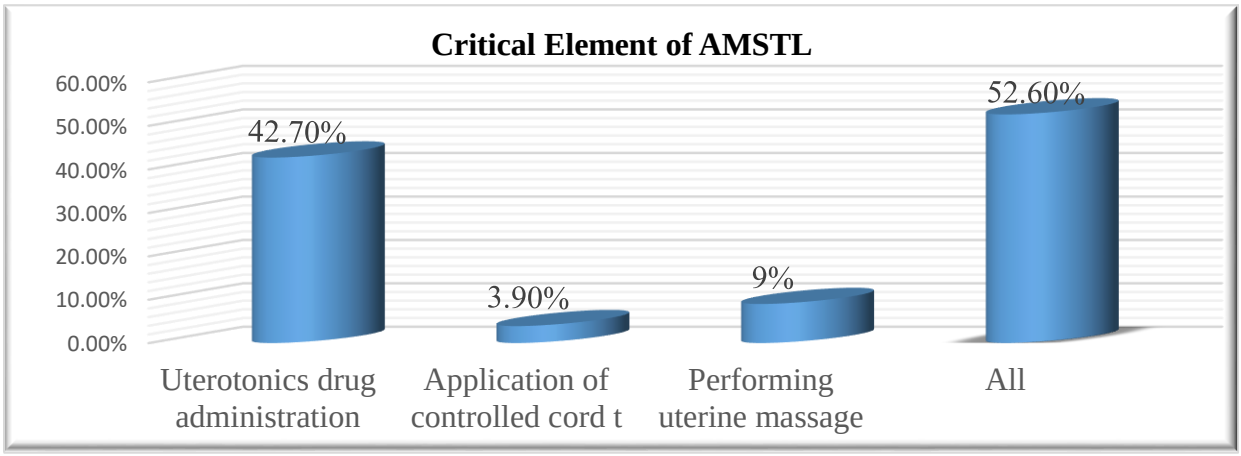

FIGURE 3: Response of Obstetric Care Provider on Critical Element of AMTSL at Governmental Health Facilities in North Wollo, Amhara Region, Ethiopia 2018.

Majority 177(76.3%) of respondents were responded about time cord clamping is between 1-3 minutes' followed by 46(19.8%) said that less than one minutes while the rest 9(3.9%) said that cord is clamped after three minutes.

Majority of the respondent 184(79.3%) agreed about the time of performing uterine massage is every 15 minutes for the first two hours after delivery of the baby followed by 19(8.2%) said it is performing every 10 minutes for the first two hours after delivery of the baby, 19(8.2%) said it performing every 30 minutes for the first two hours after delivery of the baby while the rest 10(4.3%) said it performing hourly for the first two hours after delivery of the baby.

***5.3.2.* Knowledge on harmful practice when performing AMTSL**

Regarding to the harmful practice when performing AMTSL, majority of the respondent 189(81.5%) believed that applying cord traction without fundal support is a harmful practice during AMTSL carrying out as in figure 4.

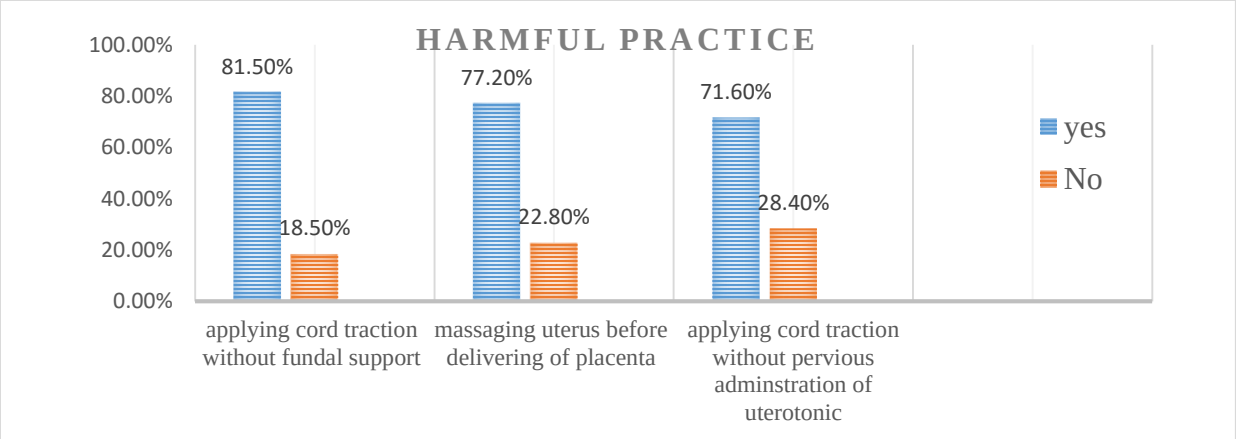

FIGURE 4:Response of Obstetric Care Provider on Harmful Practice when performing AMTSL at Governmental Health Facilities in North Wollo, Amhara Region, Ethiopia 2018.

5.4. Practice obstetric care provider on AMTSL

To investigate the Practice of respondent on AMTSL, each obstetric care provider was observed by 16 steps of check list outlined by WHO and FIGO/ICM guidelines on AMTSL ***(see on annex IV).*** Based on this, only 75(32.3%) of obstetric care provider had good practice on AMTSL intervention as in figure 5.

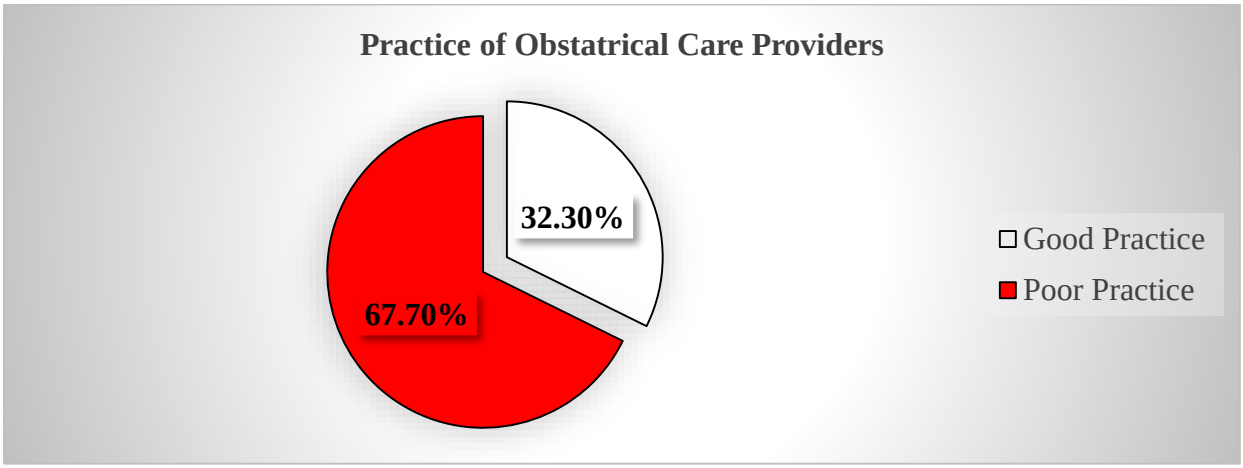

FIGURE 5:Practice of Obstetric Care Provider on AMTSL at Governmental Health Facilities in North Wollo, Amhara Region, Ethiopia 2018.

Out of 232 participants, only 108 (46.6%) obstetric care provider were the only participants that managed third stage of labour with assistance while 124 (53.4%) had no assistant. Furthermore, more than half 134(57.8%)of obstetrical care providers was loaded uterotonic drugs before third stage of labour while 98(42.2%) of them was prepared during third stage of labour.

From those who were loaded uterotonic drugs before third stage of labour, majority 93(69.4%) were provided uterotonic agent within one minute of delivery of the baby followed by 31(23.1%)

were provide at the delivery of anterior shoulder, 8(6.0%)were administered within 3 minutes and 2(1.5%) were after 3 minutes of fetus delivered.

However, all participants 232(100%) was administered uterotonic drug during third and fourth stage of labor. The majority of those who provide uterotonic agent 223(96.1%) were give Oxytocin while the rest 9 (3.9%) were administered ergometrine. Only 200(86.2%) of participant was palpated the mother's abdomen to rule out presence of another fetus prior to administration of uterotonics while the rest 32(13.8%) was administered uterotonic drug without rule of the presence of another fetus.

Regarding to time of uterotonic drug administration, majority of them 146(62.9%) were provide uterotonic agent within one minute of delivery of the baby followed by 46(19.8%), 26(11.2%) and 14(6.0%) were provide at the delivery of anterior shoulder, within 3 minutes and after 3 minutes of fetus delivered respectively.

From a total of 232 obstetrical care providers, majority 169(72.8%) participant was clamped and cut the cord on the recommended time(1-3minutes) followed by 48(20.7%) were clamped and cut the cord less than one minutes as in figure 6.

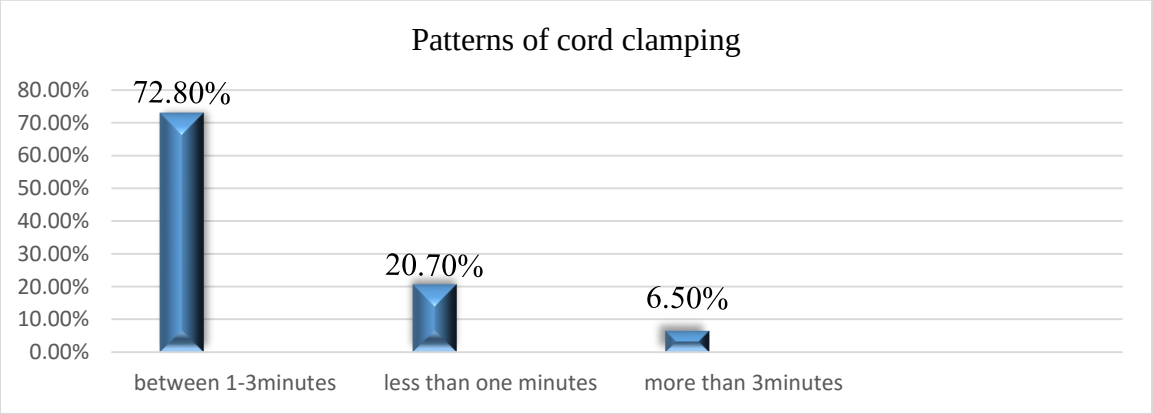

FIGURE 6:PATTERNS OF CORD CLAMPING BY OBSTETRIC CARE PROVIDER AT GOVERNMENTAL HEALTH FACILITIES IN NORTH WOLLO, AMHARA REGION, ETHIOPIA 2018.

About 182(78.4%) of obstetrical care providers were waited 2-3 minutes until the occurrence of strong uterine contraction, 201(86.6%) of participants were waited until the presence gush of blood to apply CCT, 178 (76.7%) of participants were applied controlled cord traction to deliver placenta, 205(88.4%) of them supports placenta with both hands and extracts the membrane gently with lateral movements.

Majority, 219(94.4%) of deliveries received uterine massage immediately following the delivery of the placenta, 220(94.8%) of participants were assessed completeness of the placenta and

membrane. Majority 205(88.4%) of obstetrical care providers were informed the mother to massage the uterus every 15 minutes for 2 hours.

Overall use of the three component of AMTSL was more common among midwives compared to other profession as in figure 7.

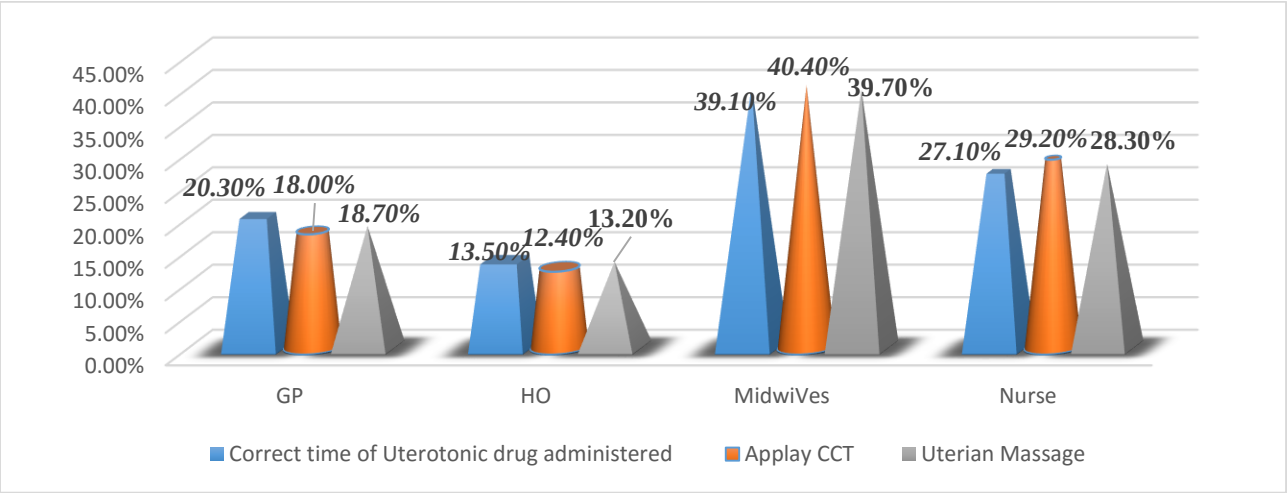

FIGURE 7: PERCENT OF PROFESSIONALS WHO CORRECTLY USE THE THREE COMPONENT OF AMTSL AT GOVERNMENTAL HEALTH FACILITIES IN NORTH WOLLO, AMHARA REGION, ETHIOPIA 2018.

5.5. Factors associated with knowledge and practice of obstetric care providers towards AMTSL

5.5.1. Factors associated with knowledge

According to bivariate logistic regression, those variables which have association with knowledge of obstetric care providers on AMTSL with P-value ≤ 0.25 were regressed against the dependent variable by multivariable logistic regression.

In bivariate logistic regression analysis work experience, age, types of health institution, training, qualification and Profession were associated with the knowledge of participant on AMTSL. Whereas in multivariable logistic regression analysis age of respondents, training, qualification and Profession were significantly associated with knowledge of participant on AMTSL.

Age of obstetric care providers were associated with their knowledge on AMTSL both in bivariate and Multivariable analysis**.** The age between 25-30 were 6.4 times more likely to be good in knowledge on AMTSL than those who had age greater than 35 [AOR 6.497(1.580-26.713)].

Regarding to profession, general practitioner were 5.3 times more likely to be good in knowledge on AMTSL than nurses [AOR 5.323 (95% CI, (1.479 to19.160)]. Additionally, obstetric care

providers who had diploma in qualification were 74.9% less likely to be good in knowledge on AMTSL than those who had degree [AOR 0.251 (95% CI, (0.108-0.584)].

Furthermore, Obstetric care providers who had been trained on AMTSL were 7.1 times more likely to be good in knowledge on AMTSL than those who didn't received training on AMTSL [AOR 7.122 (95%CI, (3.032-16.728)] as in table 5.

TABLE 4: Bivariate and Multivariable Analysis on Factors associated with Obstetrics Care Providers' Knowledge on Active Management of Third Stage of Labor at Governmental Health Facilities in North Wollo, Amhara Region, Ethiopia 2018.

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Variables	**Knowledge status**		**COR(95% CI)**	**AOR(95% CI)**	**P value**
	Good	**Poor**			
Work experience					
<12 month	13	28	0.376(0.176-0.806)*		
12-24 month	21	17	1.001(0.475- 2.111)		
25-36 month	32	16	1.621(0.795-3.306)**		
>36month	58	47	1		
Age of respondent					
<25	17	32	1.328(0.362- 4.874)	2.453(0.542-11.104)	0.24
25-30	**85**	**50**	**4.250(1.266-14.267)***	**6.497(1.580-26.713)**	**0.00**
31-35	18	16	2.812(0.736-10.751)	3.488(0.722-16.848)	0.12
>35	4	10	1	1	
Health institution					
Hospitals	52	22	2.823(1.567-5.086)**		
Health centers	72	86	1		
Profession					
GP	**38**	**4**	**14.589(4.690- 45.385)****	**5.323(1.479-19.160)**	**0.01**
HO	15	17	1.355(0.584- 3.144)	0.839(0.283-2.492)	0.75
Midwife	43	44	1.501(0.795- 2.832)	0.988(0.460-2.121)	0.97
Nurse	28	43	1	1	
Qualification					
Diploma	**14**	**40**	**0.199(0.099- 0.400)****	**0.251(0.108-0.584)**	**0.00**
Advanced Diploma	17	15	0.646(0.298-1.398)	0.737(0.269-2.021)	0.73
Degree	93	53	1	1	
Training					
Yes	**115**	**64**	**8.785(4.029-19.153)****	**7.122(3.032-16.728)**	**0.00**
No	9	44	1	1	

Note: *P<0.05, **P<0.01, 1 reference

5.5.1. Factors associated with the practice of obstetric care providers on AMTSL.

According to bivariate logistic regression, those variables which have association with practice on AMTSL with P-value ≤0.25 were regressed against the dependent variable by multivariable logistic regression.

As shown in Table (5) below in bivariate logistic regression analysis sex of respondents, work experience, training on AMTSL, types of training, qualification, Profession, presence of assistance during 3rd stage management, Knowledge of respondent on AMTSL, and time of uterotonic drug preparation were significantly associated with the participant practice on AMTSL.

However, in multiple logistic regression analysis: work experience of respondents, Knowledge of respondent on AMTSL, presence of assistance during 3rd stage management and time of uterotonic preparation were significantly associated with practice of participant on AMTSL.

work experience of the participants was associated with their practice on AMTSL both bivariate and Multivariable analysis. Those who had work experience less than 12 months were 79.4% less likely to be practiced AMTSL appropriately than who had work experienced more than 36 months [AOR 0.206 (95% CI, 0.067-0.635)].

Obstetric care providers who managed 3rd stage of labour with assistance were 2.0 times more likely to be practiced AMTSL appropriately than those managed 3rd stage of labour alone [AOR 2.045 (95% CI, 1.062-3.936)].

Obstetric care providers who prepared/loaded uterotonic drugs prior 3rd stage of labour were 4.6 times more likely to be practiced AMTSL appropriately than those prepared/loaded uterotonic drugs during or after 3rd stage of labour [AOR 4.695(95% CI, 2.311-9.538)].

Furthermore, knowledge of obstetrics care providers about AMTSL were associated with their practice on AMTSL. Those who had good knowledge on AMTSL were 2.9 times more likely to be good in practice of AMTSL than those who had poor knowledge of on AMTSL [AOR (2.986(95% CI, 1.451-6.144)].

TABLE 5:Bivariate and Multivariable Analysis on Factors Associated with Obstetrics Care Providers' Practices on Active Management of Third Stage of Labor at Governmental Health Facilities in North Wollo, Amhara Region, Ethiopia 2018.

Variables	**Practice status**		**COR(95% CI)**	**AOR(95% CI)**	**P value**
	Good	**Poor**			
Work experience					
<12 month	**5**	**36**	**0.200(0.073-0.552)****	**0.206(0.067-0.635)**	**0.00**
12-24 month	10	28	0.515(0.227-1.169)	0.654(0.251-1.706)	0.38
25-36 month	17	31	0.791 (0.390- 1.605)	0.571(0.252-1.293)	0.17
>36month	43	62	1	1	
Manage 3rd stage of labour with assistance					
Yes	**43**	**65**	**1.902(1.090-3.320)***	**2.045(1.062-3.936)**	**0.32**
No	32	92	1	1	
Loading of uterotonic					
Yes	**59**	**75**	**4.032(2.136 -7.608)****	**4.695(2.311-9.538)**	**0.00**
No	16	82	1	1	
Sex					
Male	50	78	2.026(1.142-3.593)*		
Female	25	79	1		
Profession					
GP	17	25	2.769 (1.184-6.473)*		
HO	9	23	1.593(0.606-4.191)		
Midwife	35	52	2.740(1.327-5.657)**		
Nurse	14	57	1		
Qualification					
Diploma	10	44	0.355(0.165-.761)**		
Advanced Diploma	8	24	0.520(0.219-1.238)		
Degree	57	89	1		
Training					
Yes	68	111	4.026(1.720-9.424)**		
No	7	46	1		
Types of training					
Both	21	13	3.714(1.383-9.977)*		
In service	37	46	7.459(3.260-17.070)**		
Pre service	54	9	1		
Knowledge of respondent on AMTSL					
good knowledge	**57**	**67**	**4.254(2.295-7.885)****	**2.986(1.451-6.144)**	**0.00**
poor knowledge	18	90	1	1	

Note: *P<0.05, **P<0.01, 1 reference

CHAPTER SIX DISCUSSION

6. Discussion

This chapter gives a detailed discussion of the study findings and compares with the prior studies done for similarities or differences.

6.1. knowledge of obstetric care provider on AMTSL

FIGO-ICM strongly recommend that, every obstetrical provider at birth needs to have knowledge, skills, and critical judgment to carry out AMTSL appropriately(1). However, in this study most of obstetric care provider 124(53.4%) had good knowledge on AMTSL, this is slightly similar to the studies conducted in Iran (57%) and Addis Ababa (51.5%) (31,24). On other hand, the result of this study was higher than previous studies conducted in Hawassa city (33%) and (37.7%) Sidama Zone(25,29). The differences between these findings might be due to variation on the training coverage and better exposure to information sources also considered.

In this study majority of (92.7%) obstetrics care providers knew the first recommended uterotonic drug is oxytocin, (86.6%), (92.2%) and (86.6%) of respondent knew about the correct dose, route and time of oxytocin drug administration respectively. The finding in line the study conducted in Hawassa city and Sidama Zone(14,15). However, the present finding was higher than when compared to study done in Sudan. Which were reported that only 18% of midwives knew Oxytocin as first line uterotonic drug, 48% of respondent were knew the timing of uterotonic drug administration is immediately after delivery of Newborn (32). The discrepancy might be due to variation in study area, study participants (only one profession), difference in coverage of training on AMTSL. In addition to that variation on sample size (only 50) also considered.

The revised guidelines by WHO in 2012 reviled that use of the uterotonic drugs are the most critical element of AMTSL(2). However, in the present study only (42.7%) of respondents were reported that the use of uterotonic drugs is as critical element of the AMTSL. Regarding to the time of cord clamping, in the present study most of respondent (76.3%) were responded that between 1-3 minutes' is the time of cord clamping. The finding of this study was contradictory to the studies done in Nigeria at Oshogbo 82.9%, 17.1 % and Anambra State 91.5%, 9.5% were reported that early the cord clamped less than one minutes and between one up to three minutes respectively(28,31). The differences between these findings might be due to changed and updates of guideline, time gap, study participants (only one profession), difference in coverage of training

on AMTSL. However, delayed cord clamping is still recommended for all births to reduce infant anemia(2,3).

In this study obstetric care providers who had been trained on AMTSL were 7.1 times more likely to be knowledgeable than those who didn't received training on AMTSL [AOR 7.122 (95%CI, (3.032-16.728)]. The finding of the present study were contradictory to the study in Tanzania; reviled that 93% of respondent who received AMTSL training either during pre-service education or in-service training had poor knowledge on AMTSL(40). On other hand the study in Rwanda showed that there was no significant association between training and their specific knowledge on AMTSL(37). The possible justification for this difference might be due to weakness in the training programs and variation in study participants. In fact, AMTSL training is given for the purpose of increasing knowledge and skills of obstetric care providers to deliver service appropriately.

Furthermore, profession and qualification of the respondent had a significant association with the knowledge. Obstetric care providers who had diploma in qualification were 74.9% less likely to be good in knowledge on AMTSL than those who had degree [AOR 0.251 (95% CI, 0.108-0.584)]. In addition to that general practitioner were 5.3 times more likely to be good in knowledge on AMTSL than nurses [AOR 5.323 (95% CI, (1.479 to19.160)]. This is similar the study conducted in Addis Abeba; Interns are 5.5% more likely be knowledgeable than other profession(27). This is might be length of stay on education is the possible justification.

The age group between 25-30 of respondent were 6.4 times more likely to be good in knowledge on AMTSL than those who had age greater than 35 [AOR 6.497(95% CI, 1.580 to 26.713)]. This is similar with the study in Ghana(28). This could be, young person graduates in recent times from their school (this might be help them to know the updated guideline that changed on some issue of AMTSL).

6.2. Practice of obstetric care provider on AMTSL

Active management of third stage of labor is one of a life-saving interventions. FIGO/ICM and WHO recommended that, routine use of AMTSL by skilled birth attendant at health facilities for all singleton vaginal birth and also all obstetric care providers should be having knowledge and skill on AMTSL (1,2). However, in the present study only 32.3% of providers were followed AMTSL steps appropriately. This finding was almost in line with the study conducted in Sidama Zone (32.8%)(14). In addition to that, this study was higher than the study done in Sudan (26.7%) and (16.7 %) in Hawassa city(15,32). On other hand the present study was lower than the studies

conducted in Netherlands(48%), Addis Abeba(47%) and Nigeria (78%) of providers had good Practice on AMTSL (17,31,33). The discrepancy might be due to variation in study setting (this study conducted on hospitals and health centers but other study conducted only at hospitals, study participants (different disciplines).

Oxytocin should be prepared/Pre-loaded immediately when the women pushing down at second stage of labor mean that before third stage of labour. However, only 57.8% of care provider was loaded uterotonic drugs before third stage of labour. This is highly lower than when compared to study done in Nepal which was 99.3%(34). The possible justification for this difference might be variation in study sitting (the study conducted only one training center hospital), study design (single blind), study participant (having exposure to different on-job experience). However, in the present study Obstetric care providers who prepared/loaded uterotonic drugs prior third stage of labour were 4.6 times more likely to be practiced AMTSL appropriately than those prepared/loaded uterotonic drugs during or after 3rd stage of labour [AOR 4.695(95% CI, 2.311-9.538)]. In fact, the purpose of preparation of Oxytocin before 3rd stage of labour is to administered within recommended time.

Furthermore, in this study more than the half (53.4%) of obstetric care provider managed third stage of labour without the presence of assistance. This is higher than when compared to the study conducted in Nigeria showed that, 23.7% of participants were implementing AMTSL alone. The reported reviled that lack of an assistant is one of the hindering factors of to deliver AMTSL(31). In the present study, obstetric care provider that managed third stage of labour with assistance were 2.0 times more likely to be practiced AMTSL appropriately than those managed 3rd stage of labour alone [AOR 2.045 (95% CI, 1.062-3.936)]. In fact, all obstetrical procedures should be delivered as team work to give appropriate service. Since, the presence of assistance might be help to facilitate the procedure and remind activities.

Immediately after delivery of the baby, all obstetrical care providers should be palpate women abdomen to rule out the presence of an additional baby or babies to prevent birth asphyxia of second twine, uterine rupture and other complication(1,2). However, Majority (86.2%) of obstetrics care providers was palpated the women's abdomen to rule out the presence of another fetus prior to administering oxytocin. This finding was in agreement with studies conducted in Ethiopia at Finfine area Special Zone of Oromia Regional State (83.9%) and (82.4%) Addis Ababa (16,17). On other hand, the present finding was higher than the study conducted in Southern

Ethiopia Hawassa (65.3 %) and (62.7%) Sidama Zone (14,15). The discrepancy might be due to time gap (having a chance to know a changed guideline and advances change in practice), variation on training coverage and knowledge difference also considered.

FIGO/ICM strongly recommended that, all women giving birth should be offered uterotonics drug during the third stage of labour for PPH prevention, preferably oxytocin, 10 IU IM immediately after all births, apply CCT, Fundal massage immediately after delivery of the placenta(1). Even though all observed laboring mother were received uterotonic drug in the present study, only 71.6% of the mother were expelled placenta after received uterotonic drug while the rest 28.4% were expelled placenta prior to administration. This is considered as potentially harmful practiced according to FIGO/ICM and WHO guideline due to the women might be develop PPH even death. Furthermore, 96.1% of laboring mother were received oxytocin. From those, majority of observed delivery 146(62.9%) oxytocin was given within one minute of delivery of the baby, 76.7% obstetrics care providers were applied CCT correctly, fundal massage immediately after delivery of the placenta was done by 94.4 % of obstetrics care providers. This finding does not agree with studies in Sudan, Rwanda, Hawasa city and Sidama zone (14,15,32,37). This might be due to Knowledge difference (knowledge is a key to be good in practice), variation in study participant, negligence of obstetric care providers and different patient flow are the possible explanation.

Those who had work experience less than 12 months were 79.4% less likely to be practiced AMTSL appropriately than those who had work experienced more than 36 months [AOR 0.206 (95% CI, 0.067-0.635)]. This finding does not agree with the study done in Indonesia on AMTSL showed that midwives with less than a year of working experience were more likely (86%) to follow AMTSL standards documents than midwives with more than 15 years of work experience (68%)(38). The discrepancy might be due to variation in study participants (research in Indonesia was done only midwives. In fact, obstetric care providers who practiced or intervene one procedure in his or her day to day activity might have advances change in practice or becoming more experts.

Even though had statically significant only in bivariate analysis between training and types of training of the obstetric care providers with their practice on AMTSL. Obstetric care providers who had been trained on AMTSL were 4 times more likely to be good in practice on AMTSL than those who didn't received training on AMTSL. [COR4.026(95%CI, 1.720-9.424)]. This is similar with the study done in Hawassa and Sidama Zone(14,15). In addition to that from those who had

been trained on AMTSL, obstetric care providers who received on the job training were 7.4 times more likely to be good in practice on AMTSL than those who received on pre service training [COR 7.459(95%CI, 3.260-17.070)]. this is also supported by the study conducted in Tanzania(29). In fact, obstetric care providers having on job training might have better motivation for practice because of the insight they had from the training.

Furthermore, in the present study there is a significant relationship between knowledge and practice of Obstetric care providers on AMTSL. Those who had good knowledge on AMTSL were 2.9 times more likely to be good in practice of AMTSL than those who had poor knowledge on AMTSL [AOR (2.986(95% CI, 1.451-6.144)]. This is similar the studies conducted in Tanzania, Finfine area Special Zone of Oromia Regional State, Nigeria, Ghana(16,28,29). On other hand the present finding does not agree with studies done Rwanda, Nigeria(31,37). The reason might be due to the fact that, those who had adequate knowledge would have an increased interest to put into practice and also it has a contribution to increased performance.

Limitation of the study

- The practice of obstetrical care providers was investigated by direct observation, which might be change the behaviors being observed, or knowing their performance is evaluated can be affected results of the study.

CHAPTER SEVEN CONCLUSION AND RECOMMENDATIONS

7.1. Conclusion

More than half of obstetrical care providers had good knowledge, whereas one third of participants had good practice towards active management of third stage of labour.

The study revealed that the knowledge of obstetrical care providers on AMTSL was significantly associated with training, profession, Age and qualification. Whereas the practice was significantly associated with work experience, Knowledge, the presence of assistance during third stage management and time of uterotonic drug preparation.

Even though all laboring mothers received uterotonic drug, more than one-fourth of them received without the recommended time and delivered Placenta before received uterotonics drug. Additionally, more than one-fourth of obstetrical care providers was managed placenta without applying CCT, presence of uterine contraction and also they administered uterotonics drug without rule out the presence of second baby and clamped the cord without the recommended time.

7.2. Recommendations

On the basis of the most important findings of the study, the following recommendations are suggested

To North Wollo Zonal Health Bureau

- ✓ Provide practice-based AMTSL training for obstetrical care providers to improve their knowledge and skills.
- ✓ Develop a mechanism for informing providers about updates and changes in protocols on AMTSL.
- ✓ Ensure regular supportive supervision and monitoring of providers
- ✓ Should be given educational opportunities for obstetrical care providers to update their knowledge and skills

To health institutions

- ✓ Facility managers should be avail a guideline on AMTSL in labour ward to serve as a reminder of the steps involved and when to undertake them.
- ✓ A routine monitoring and evaluation of the AMTSL practice should be conducted
- ✓ A birth assistance should be presence with the birth attendant during third stage management.

For obstetric care providers

- ✓ Obstetric care provider should update their knowledge and increase use of AMTSL correct by creating a plan to improve the following practices
  - Should be rule out the presence of second baby prior to administered uterotonics drug
  - Should be provide uterotonic drug within one minute of the delivery of the baby
  - Should be clamp and cut of the cord within one up to three minutes.
  - Should be apply CCT
- ✓ Should be loaded or prepared oxytocin drug before third stage of labour.
- ✓ AMTSL should be applied for every woman and accept as norm.

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Annexes

Annex I: Information Sheet

Jimma University Institute of Health, Faculty of Health Sciences, School of Nursing and Midwifery

Good morning/afternoon! How are you?

Introduction

Hello, my name is _____. I am research assistant and working with Mr. wondwosen molla from Jimma University. He is doing a research ***on the knowledge, practice and association factors of active management of third stage of labor among obstetric care providers*** as partial fulfillment for Degree of Master of Science in Maternity Health Nursing. I am going to give you information and invite you to be part of this research. If you agree to participate, you will be required to fill out a questionnaire, which will take about 10 minutes of your time.

There are no direct individual benefits of participation and might have a minimal risk, but the information that you will give will help in designing of specific strategies to improve the utilization of active management of third stage of labour. The confidentiality of your response to this questionnaire will be protected. Your name, Address or phone number will not be used. You will not be named in any reports. The questionnaire and other information will be locked and can be accessed only by the researcher and the supervisors. Your participation to this research is voluntary and you have the right to withdraw from the study at any time

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

Name: Wondwosen Molla Tel: 0921032757 E- mail: wondwosenm955@gmail.com

I have been read the above information and I am willing to participate in the study!!!

Signature of respondent…….

Signature of supervisor…….

Data collector name: ……. Date……

Health facilities name ----------

Questionnaire code ----------

Thank you!!!!!!!!!!!!!!!!!!!!!!!!

Annex II Self-administered questions

Section I. Socio demographic characteristics and other factors

NO	Question	Response	Code
101	Age in completed year	----------	
102	Sex	1. Male 2. Female	
103	Marital status	1. Married 2. single 3. Divorced 4. Widowed 5. Other (Specify)_____	
104	What Ethnic group do you belong to?	1. Amhara 2. Oromo 3. Tigre 4. Other(Specify)_____	
105	What is your Religion?	1.orthodox 2.Muslim 3. Protestant 3. Other (Specify)_____	
106	What is your profession ?	1. Obstetrician and gynecologist 2. General Practitioner 3. Health officer 4. Midwife 5. Nurse 6. Other (Please specify)……	
107	What is your qualification?	1. Diploma 2. Advanced Diploma 3. Degree 4. Other (Please specify)……	
108	What year did you graduate (or complete) with this qualification?	……..years	
109	How many years did you work in this profession?	……	

Health facility factors

201	Which types of health institution are you working?	1. Hospitals 2. Health center	
202	If your answer for Q201 is hospital, which categories of hospital setting are you working?	1.Tertiary 2.Secondary 3.Primary 4.Other(specify)_____	
203	Do you have adequate oxytocin drugs	1 Yes 2 No	
204	Does your delivery ward conducive to apply AMTSL	1. Yes 2. No	
205	Do you have access to reading material prepared on AMTSL in your facilities ?	1 Yes 2 No	

206	If Yes to Q205, where did you get reference source about AMTSL?	1. BEmONC manual and checklist, 2. WHO Guide line, 3. Midwifery books 4. 0thers__----------	
207	Do you have a functional Refrigerator to store oxytocin in your facilities?	1. Yes 2. No	

Section II. Training information in AMTSL

NO	Question	Response	Code
301	Do you know AMTSL?	1) Yes 2) No	
302	If yes for Q301, Where did you get expertise on AMTSL	1) At midwifery/nursing school 2) At job training of workshop 3) From my colleagues 4) From job Aid references 5) Other(Please specify)……..	
303	Have you ever had training on AMTSL?	1. Yes 2. No	
304	If yes for Q No 303, What kind of training?	1. In- service 2. Pre service(Basic) 3. Both	
305	If yes for Q No 303, which training did you receive from the following topics	1. Active management third stage of labor (AMTSL) 2. Routine care for labor and normal vaginal delivery 3. Manual removal of placenta 4. Removal of placenta or product of 5. Conceptions (D&C, vacuum aspiration, etc.) 6. Management of postpartum hemorrhage 7. Not trained at all	
306	If yes for Q No 303, How long ago did you have the training?	1. ---------- 2. I don't know	
307	Do you use AMTSL	1. Yes 2 No	
308	If yes for Q307 how often do you use active management of third stage of labor?	1) Never 2) Rarely 3) Some times 4) Most of the time 5) always	

Section III. Knowledge assessment

No	**Knowledge questions**	**Response**	**Code**
401	Which one of the following is/are the most critical element of the active management of third stage of labour?	1. Uterotonics drug administration 2. Application of controlled cord traction 3. Performing uterine massage 4. All	
402	What is your role immediately after the delivery of the new born?	1) Administer uterotonic drug 2) Check the presence other baby 3) Uterine massage	
403	What is the recommended first line uterotonic drug for AMTSL	1) Ergometrine 2) Oxytocin 3) Misoprostol	

404	What is the dose of oxytocin drug for AMTSL?	1) 0.5mg 2) 10 IU 3) 10 mg 4) 0.5IU 5) Other (specify)_____	
405	What is the recommended route of oxytocin administration during AMTSL?	1) IV 2) IM 3) PO 4) Per vagina	
406	The three main sequential components of AMTSL are	1. Oxytocin administration, immediate uterine massage after delivery of the placenta and CCT 2. Immediate uterine massage after delivery of the placenta, CCT and Oxytocin administration 3. Oxytocin administration, CCT and immediate uterine massage after delivery of the placenta.	
407	When will you administer the uterotonic drug?	1) After the delivery of the anterior shoulder 2) Within 1 min after delivery of baby 3) Within 3 min 4) After the delivery of placenta 5) After 3min	
408	When will you clamp the cord after delivery of the baby	1. < 1 minutes 2. 1-3 minutes 3. More than 3 minutes	
409	How often you perform uterine massage?	1. Every 10 minutes for the first two hours after delivery of the fetus 2. Every 15 minutes for the first two hours after delivery of the fetus 3. Every 30 minutes for the first two hours after delivery of the fetus 4. Every hourly for the first two hours after delivery of the fetus	
410	Within how long should AMTSL be completed?	1. 1minite if relaxed within 3 minutes 2. 5 minutes 3. 5-10 minutes 4. Other(specify)……	
411	Which one of the following is/are believed to be harmful practice(s) when performing AMTSL? (More than one answer possible)	1. Massaging uterus before delivering the placenta 2. Applying Cord traction without fundal support 3. Application of cord traction without previous administration of a uterotonic 4. Other (specify)……	

Annex III. Observation check lists

Data collector name: ……. **Date and time ……**
Health facilities name ----------
code ----------
Signature of supervisor…….

NO		OBSERVATIONS
1.	Time of Oxytocin Drug preparation /loading	1. Pre-loading/ before third stage of labour 2. During third stage of labour
2.	Is there an assistant on third stage of labour management with the birth attendant	1. Yes 2. No

No	**Observing AMTSL standard steps per observation guide**	**Observation**	SPECIAL OBSERVATIONS IF ANY
501	After delivering the first baby palpates the abdomen and rules out the presence of another fetus before continuing	1) Yes 2) No	
502	Time of administration of uterotonic	1) After the delivery of anterior shoulder 2) Within 1 min of delivery of baby 3) Within 3 min of delivery of baby 4) More than 3min after delivery of baby	
503	Which uterotonic given	1) Oxytocin 2) Ergometrine 3) Misoprostol 4) Other dose specify------	
504	Dose of uterotonic drug given	1) 0.5mg 2) 10 IU 3) 10 mg 4) 0.5IU 5) Other dose specify------	
505	Route of uterotonic given	1) IM 2) IV 3) Oral 4) Other dose specify------	
506	Time of cord clamped	1) < 1 minutes 2) 1-3 minutes 3) More than 3 minutes	
507	Waits for strong uterine contraction (2-3 minutes)	1) Yes 2) No	

508	Does wait for a gush of blood	1) Yes 2) No	
509	Was placenta delivered before administration of uterotonic?	1) Yes 2) No	
510	Applies traction to the cord while applying Supra pubic counter traction	1) Yes 2) No	
511	Supports placenta with both hands	1) Yes 2) No	
512	Extracts membranes gently with lateral movements	1) Yes 2) No	
513	Performs uterine massage immediately following the delivery of the placenta	1) Yes 2) No	
514	Assess completeness of the placenta and membrane	1) Yes 2) No	
515	Ensures uterus doesn't relax after stopping uterine massage	1) Yes 2) No	
516	Inform the mother to massage the uterus every 15 minutes for two hours	1) Yes 2) No	

Annex IV- All observation result on Practice

TABLE 6*:Practice of Obstetric Care Provider on AMTSL at Governmental Health Facilities in North Wollo, Amhara Region, Ethiopia 2018.*

Variables	Categories	Frequency	Percentage
Checked presence of another fetus	Yes	200	86.2
	No	32	13.8
Correct timing of administration uterotonic drug	Yes	192	82.8
	No	40	17.2
Types of uterotonic drugs given	Oxytocin	223	96.1
	Ergometrine	9	3.9
Correct dose of uterotonic drugs given	Yes	217	93.5
	No	15	6.5
Correct mode of administration uterotonic drugs	Yes	225	97
	No	7	3
Correct Timing of cord clamping	yes	169	72.8
	No	63	27.2
Wait uterine contraction 2–3 min to apply CCT	Yes	182	78.4
	No	50	21.6
Wait for gush of blood to apply cord control traction	Yes	201	86.6
	No	31	13.4
Placenta delivered before uterotonics	Yes	66	28.4
Administration	No	166	71.6
CCT performed as protocol	Yes	178	76.7
	No	54	23.3
Placenta was supported by both hand	Yes	205	88.4
	No	27	11.6
Membrane extracted gently with lateral movement	Yes	205	88.4
	No	27	11.6
Uterine massage immediately after delivery of placenta	Yes	219	94.4
	No	13	5.6
Placenta assessed for completeness	Yes	220	94.8
	No	12	5.2
Uterine relaxation ensured	Yes	203	87.5
	No	29	12.5
Inform and demonstrate the mother massage uterus	Yes	205	88.4
	No	27	11.6

ASSURANCE OF PRINCIPAL INVESTIGATOR

The undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research thesis and for provision of required progress reports as per terms and conditions of the Institute of Health in effect at the time of grant is forwarded as the result of this application.

Name of the student: _____

Date. _____ Signature _____

APPROVAL OF THE FIRST ADVISOR

Name of the first advisor Sr. Marta Tessema:

Date. 26/06/2018 Signature _____

APPROVAL OF THE SECOND ADVISOR

Name of the second advisor: Sr. Asresash Demisse

Date. 26/06/2018 Signature _____

APPROVAL OF THE EXAMINER

Name of the second advisor: Mr. Samuel Abdu

Date. 26/06/2018 Signature _____