Ethiopian Journal of Reproductive Health (EJRH)

EJRH

FEBRUARY, 2018

Ethiopian Society of Obstetricians and Gynecologists (ESOG)

Tel.: +251 115 506 068/069 Fax: +251 115 506 070

P.O. Box: 8731

Addis Ababa, Ethiopia

esogeth@gmail.com

newsletter@esog.org.et

www.esog-eth.org

Address:

Head Office:

Ras Desta Damtew Avenue
Tsehafi Tizaz Teferawork Keda Building (Near Ghion Hotel)
East Wing, 2nd Floor, Room no 7

ESOG Project Office:

Kirkos District/ Kassanchis

Nigist Towers, Building, 3rd floor

BASIC EMERGENCY MATERNAL AND NEONATAL CARE STATUS OF SOUTH GONDAR ZONE, NORTH CENTRAL ETHIOPIA: INSTITUTIONAL DESCRIPTIVE SURVEY, JUNE 2016

Author: Bedilu Abebe Abate[1]; Mekonnen Assefa Ahunie[2]
[1and 2]Debre Tabor University, College of Health Sciences, Department of Public Health

ABSTRACT

BACKGROUND: Globally; an estimated 303,000 maternal deaths, two million intrapartum-related stillbirths and neonatal deaths occur annually. The majority of the deaths occur around the time of childbirth and three fourth are preventable with BEmONC services.

OBJECTIVE: To assessed status of emergency maternal and neonatal care in south Gondar zone, North central Ethiopia.

METHODS: Institutional descriptive survey was conducted from January to June 2016 on 89 public health facilities including one general hospital using WHO and AMDD questionnaires. The signal functions of BEmONC were determined.

RESULT: About 94.4%, 96.6% and 79.8% of health facilities administered parenteral antibiotics, parenteral oxytocics and parenteral anti-convulsant three months before the study period respectively. More than nine in ten (91%) of facilities had performed removal of retained products in the last 3 months. More than nine in ten 93.3% of health facilities were used partograph to manage labor. The hospital performed all CEmONC signal functions. Nineteen percent of the health facilities provided intensive care to a preterm or low birth weight. Majority of health facilities (80.9%) were not provided the service due to 50.7% no separate pediatric or intensive care unit for infants, (25.4%) lack of supplies, lack of training16.9% and no indication (4.2%).

CONCLUSION: About one in three of the health facilities had performed newborn resuscitation and used partograph. Majority of the health facilities had not provided special or intensive care to a preterm or low birth weight baby in the last three months. The regional health bureau and other responsible stake holders should train professionals on breech delivery and avail supplies and solve management issues.

KEY WORDS: Signal functions, BEmONC, Ethiopia.

(Ethiopian Journal of Reproductive Health 2017;9:7-16)

INTRODUCTION

BACKGROUND: Globally high number of maternal, intrapartum-related stillbirths and neonatal deaths occur annually. The majority of the deaths are occurring around the time of childbirth and about 75% of these deaths are preventable with emergency obstetric care (EmOC) services. Birth is a critical time for both mothers and foetus [1,2,3,4].

Maternal mortality ratio (MMR) reduction is one of important goals for Sustainable Development Goals (SDGs). One way of reducing maternal and neonatal mortality is by improving the availability, accessibility, quality and utilization of services for the treatment of complications that arise during pregnancy and childbirth [1,5,6].

About 15% of pregnant women develop a complication during pregnancy, childbirth or postnatal time; this complications accounts 75% of maternal deaths. Thus, at least 15% of all this births in the population should take place in Basic Emergency Obstetric Care (BEmONC) facilities and timely and quality care is a solution for mitigating the consequences of the complication [1,7,8].

There is increasing availability of BEmONC facilities provided by government and non-government organizations but it is still a public health concern as to high maternal and perinatal mortality [3,9]. Some of them die because they were not admitted until their condition was critical; and many others die because they did not receive timely treatment at a health facility or the treatment they received was inadequate [10].

The seven signal functions for availability of BEmONC are administration of parenteral antibiotics, anticonvulsants, uterotonics, removal of retained products, assisted vaginal delivery, manual removal of placenta, and resuscitation of newborn. The signal functions for comprehensive BEmONC include all BEmONC services plus caesarean section and blood transfusion [1].

Ethiopia had achieved target of reducing child mortality three years ahead, which indicate that under-five mortality rate (U5MR) was reduced to 64/1000 live birth in 2013. Despite this, reducing Neonatal Mortality Rate (NMR) showed slow progress and the neonatal mortality rate was 29 deaths per 1,000 live births, accounted for 42% of under-five deaths [11,12].

The researcher did not get a research conducted to assess the status of BEmONC the signal functions in the study area. Thus, this study assessed the status of emergency in maternal obstetric and neonatal care services in South Gondar Zone, North Central Ethiopia.

METHODS AND MATERIALS

The study was conducted in South Gondar Zone. South Gondar zone is located 666KM to the north of Addis Ababa, the capital of Ethiopia. The zone has one general hospital, five district hospitals (two non-functional) and 93 health centers. According to the 2007 census result it has a population of 2,047,206 and of this 1,038,913 were males and 1,008,293 were females. With an area of 14,095.19 square kilometers, South Gondar has a population density of 145.56. The study period was from January 2015 to June 2016.

Institution based cross sectional study design used. All public health facilities of south Gondar zone were considered as source population while study population were all public health facilities which performed signal functions before three months in the zone. Public health facilities of that providing BEmONC services were included. Facilities which are not currently providing BEmONC services were excluded.

The sample size was calculated using the WHO, UNFPA and UNICEF agreed handbook for monitoring emergency obstetric care services. Because the number of both hospitals (if less than 25) and the number of health centers in the zone was less than hundred, all public facilities (both hospitals and health centers) will be included in the study [1]. Three supervisors who have bachelor science degree and health in background having experience in supervision were assigned after training for supervision.

Interview was conducted by using UN obstetric monitoring guideline standard questionnaire to obtain quantitative data. The performance of BEmONC facilities, availability of equipments and problems related to the facilities will be interviewed. Data was collected by five trained diploma nurses who had experienced in the procedures.

Data was first checked manually for completeness and then was coded and entered in to Epidata version 3.1. After double entry of 10%, the data was transferred to SPSS version 20.00 for analysis. The data was cleaned by visualizing, calculating frequencies and sorting. Results were presented in text and graphs. Data quality was ensured during collection, coding, entry and analysis. During data collection, training and follow up was provided for data collectors and supervisors for two consecutive days. Supervision of data collectors included observation of how are they administering questions and approaching the respondents. The filled questionnaires were checked for completeness by data collectors, supervisors and principal investigators on a daily basis. Consequently, any problems encountered were discussed among the survey team and solved immediately.

The questionnaire was pre-tested with 5% of total sample size on eligible facilities that are not included as study subjects in the main survey. Findings of pretest was discussed among data collectors and supervisors, so that, the tool was modified for inconsistency before actual data collection. The final interview was conducted using the modified questionnaire. Every problem during data collection was solved through contact with supervisors on daily basis.

Ethical clearance was obtained from Debre Tabor University ethical committee. Letter of permission was obtained from the zonal health department, the Woreda health offices and respective health facilities. The purpose of the study was explained to the study participants, verbal consent was secured and confidentiality of the information was ensured. Health information on the appropriate topic was given to all study subjects individually.

OPERATIONAL DEFINITIONS

Maternal mortality: refers to the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration or site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from acci-

dental causes.

Functioning basic BEmOC: When staff has carried out the seven signal functions of basic EmOC in the 3 -month period before the assessment, the facility is considered to be a fully functioning basic facility.

Functioning comprehensive EmOC: The facility is classified as functioning at the comprehensive level when it offers the seven signal functions plus surgery (e.g. caesarean) and blood transfusion.

Signal functions: refers to administration of parenteral antibiotics, uterotonic drugs and anti convulsants, removal of placenta, removal of retained products, performing assisted vaginal delivery, and performing neonatal resuscitation.

RESULT

A total of 89 health facilities (88 health centers and one hospital) out of 94 public health facilities were interviewed making a response rate of 94.6%. Basic emergency obstetric and neonatal care signal functions were assessed for all studied health facilities and comprehensive emergency maternal obstetric and neonatal care signal functions was assessed for the hospital.

Most 84 (94.4%) health facilities were administered antibiotics parenterally in the last three months before the study period while 5 (5.6%) did not administered. The reasons why they had not administered were management issues (n=3, 60%) and lack of drugs in the facility (n=2, 40%). Likewise, most (n=86, 96.6%) of the health facilities administered parental oxytocics in the past three months. About 3 (3.4%) were not administered both before three months and 12 months due to lack of oxytocics in the facilities. More than two thirds of the health facilities (n=63, 77.8%) were used misoprostol for obstetric indications. Similarly, 71 79.8%) of health facilities administered anticonvulsants parenterally in the last three months. The type of anticonvulsants used were magnesium sulphate (n=37, 51.4%), diazepam (n=3, 4.2%) and both n=31, 43.1%). Among those which had not administered in the past three months, 5 (27.8%) administered in the past 12 months and 13 (72.2%) were still had not administered anticonvulsant. The reason for not administering were lack of anti convulsants (n=16, 88.9%), management issues (n=1, 5.6%) and no indications (n=1, 5.6%).

All 89 of health facilities of the zone had performed manual removal of placenta in the last three months. Nine in ten (n=81, 91%) of the health facilities had performed removal of retained products in the last three months. Manual vacuum aspiration accounted for 80.2% (n=65), dilatation and curettage accounted for 12.4% (n=10, while dilatation and evacuation was used in 6.2% (n=5) and 1 (1.2%) had misoprostol.

About 9% (n=9) of the health facilities did not perform removal of retained products in the last three months due to lack of indication (n=7, 87.5%). More than nine in ten (n=83, 93.3%) of the health facilities conducted assisted vaginal delivery (vacuum or forceps) in the last 3 months. Among those performed, 72 (86.8%), 7 (8.4%) and 4 (4.8%) were assisted by vacuum extractor, forceps and both respectively. The major reason reported for not conducting assisted delivery was lack of supplies/equipment.

Nearly two third (n=65, 73%) of health facilities had resuscitated newborn with bag and mask in the last

three months. Only one facility (1.1%), the hospital, had performed cesarean delivery in the last three months. Likewise, the hospital performed blood transfusion from facility blood transfusion bank in the last 3 months. Health centers 98.9% had not performed cesarean delivery and mostly due to policy issues. Similarly, they had not transfused blood due to reasons of policy issues (n=52, 59.1%), management issues (n=20, 22.7%), lack of availability (n=9, 10.1%) and training issues (n=5, 5.7%) and lack of supplies (n=2, 2.3 %) (Figure 1).

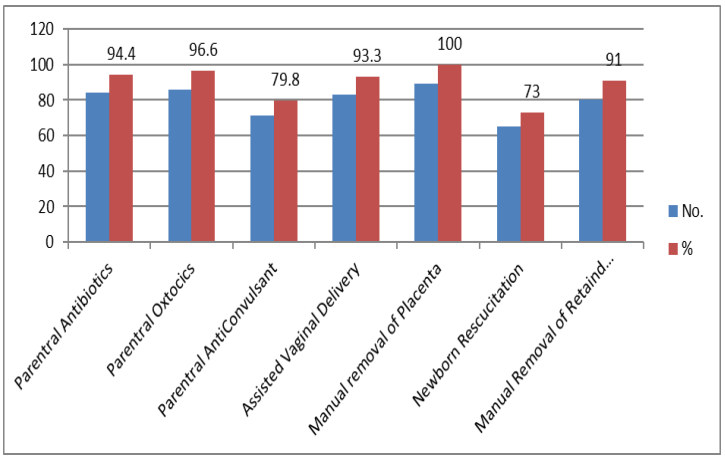

Figure 1. BEmONC signal function performance of South Gondar Zone Public health facilities, June, 2016.

In all thr 89 (100%) health facilities, staffs routinely practiced active management of the third stage labor in the last 3 months. More than seven in ten (n=68, 76.4%) of health facilities used partograph to manage labor in the last 3 months and 21 (23.6%) did not used. Lack of indication (n=3, 50%), lack of supplies (n=2, 33.3%), lack of availability of human resource (n=1, 16.7%) were reasons reported for not using partograph. About 83.1% (n=74) of them performed a breech delivery in the last three months whereas 15 (16.9%) were not. According to respondents of the health facilities they were not conducting a breech delivery as a result of policy issues (n=5, 38.5%), no indication (n=4, (30.5%), availability of human resource (n=1, 7.7%) and lack of training (n=1, 7.7%).

Eight in ten (n=72, 80.9%) of health facilities had performed rapid testing for mothers with unknown human immunodeficiency virus (HIV) status in the maternity/labor ward in the last 3 months. Almost one in fifth (n=17, 18.1%) had not performed the test owing to lack of supplies (n=16, 94.1%) and lack of training (n=1, 5.9%).

More than three out of four (n=68, 76.4%) of them had given antiretrovirals (ARVs) to sero positive mothers in maternity/labor ward in the last three months while 21 (23.6%) had not due to lack of supplies (n=13, 61.9%), no indication (n=6, 28.6%), availability of human resource (n=1, 4.8%) and lack of training (n=1, 4.8%). Seventy (78.7%) had given ARVs to newborns in maternity/labor ward in the last three months prevention of mother-to-child transmission (PMTCT). Twenty-one (21.3%) had not given due to lack of indication (n=9, 47.4%), lack of supplies (n=9, 47.4%) and lack of training (n=1, 5.3%).

Seventeen (19.1%) of the health facilities provided special or intensive care to a preterm or low birth weight baby in the last three months. Majority of health facilities (n=82, 80.9%) had not provided the service due to lack of pediatric or intensive care unit for infants (n=36, 50.7%), lack of supplies (n=18, 25.4%), lack of training (n=12, 16.9%), no indication (n=3, 4.2%) lack of availability of human resource

(n=1, 1.4%).

Less than one in ten (n=7, 7.9%) health facilities performed craniotomy in the last three months. Majority of the health facilities (n=82, 92.1%) had not performed as a result of, lack of training (n=31, 39.2), lack of supplies (n=25, 8.9%), no indication (n=8, 10.1%), management issues (n=8, 10.1%) and lack of availability of human resource (n=7, 8.9%).

DISCUSSION

Most of the health facilities (94.4%) had administered antibiotics parenterally in the last three months before the study period. This finding is slightly higher than study conducted in Ethiopia which reported 63% [13, 14] and twelve south African health districts which reported 68% [13]. This could be explained by determination of the Ethiopian government to reduce maternal and child mortality as part of MDGs and time difference among the two studies as these studies were done before ours.

All health facilities of the zone had performed manual removal of placenta in the last three months. This is also higher than study done in Ethiopia and Kenya, Malawi, Sierra Leone, Nigeria, Bangladesh and India between 2009 and 2011 and study conducted in twelve south African health districts which reported about 68% and 58% respectively [13,14,15]. Majority of the health facilities had performed removal of retained products in the last three months of which 78.3% were by manual vacuum aspiration. This is also higher than the study done in Ethiopia and Kenya, Malawi, Sierra Leone, Nigeria, Bangladesh and India which reported 67% and 42.3% respectively [14,16]. This could be due to the timely availability of inputs necessary for the procedures. Another explanation could be time difference as this finding is most recent when compared with those studies. Majority (93.3%) of the health facilities had performed assisted vaginal delivery (vacuum or forceps) in the last 3 months. Similarly, it is higher than study conducted in Ethiopia and Kenya, Malawi, Sierra Leone, Nigeria, Bangladesh and India which reported 83% and 17.5% consequently [13,14,17]. Nevertheless, study from Kenya in 2009 indicated none of the facilities assisted delivery by vacuum or forceps [13]. This could likely be due to the time difference between the two studies and discrepancy in their effort of MDGs implementation in the two study settings. Furthermore, it might be due to the fact that those studies covered a large section of the population whereas this study is limited to one zone.

Majority (91%) of the health facilities had performed removal of retained products in the last three months of which 8.3% by manual vacuum aspiration, 11.2% by dilatation and curettage, (5.6%) by dilatation and evacuation and 1.1% by administering misoprostol. This is also higher than study conducted in Kenya, Malawi, Sierra Leone, Nigeria, Bangladesh and India [16].

About 96.6% and 79.8% of health facilities had administered oxytocics and anticonvulsants parenterally in the last three months before the study period respectively. It is lower than study done in Addis Ababa in 2013 which indicated a consistent supply of uterotonic drugs for health centre was 100% [13]. This can be due to location advantage as urban areas had more access to consistent supply of drugs and high need of the drugs by urban health facilities. However, it is

higher than study conducted in Ethiopia (Maternal and newborn health service provision in Ethiopia - SPA+) and which revealed 76% and 20% parenteral oxytocics and parenteral anti-convulsant respectively and other study which reported 11.4% [14,15]. This difference could be explained by difference among the two study settings. Furthermore, it might be due to the fact that the aforementioned studies covered a large section of the population, the former is nationwide assessment and the later incorporated 25 selected districts where as this study is limited to one zone. The reason for not administering were also supported by a study conducted in Gondar, Nairobi, Malawi, Uganda, Gambia and Zambia [13,14,15,16,18].

Three fourth of health facilities had used partograph to manage labor in the last three months. This is higher than study done in North Gondar which reported 24% [22]. This could be due to increased training opportunity on the use of partograph, training of BEmONC for health care professionals and raised attention of maternal health service monitoring system in the zone and effort of the health sector in fueling to meet MDG since then.

About two third (73%) of health facilities had resuscitated newborn with bag and mask in the last three months. This is almost similar with maternal and newborn health service provision in Ethiopia - SPA+ survey which was done nationwide in Ethiopia and showed 68% [14]. But it is lower than study conducted in Ethiopia which showed 84% [13]. This could be also due to shortage of expanded training on the issue. However, only 19.1% of the health facilities provided special or intensive care to a preterm or low birth weight baby in the last three months. This could be due to lack of newborn care corner and its necessary equipment in the health facilities.

Majority (80.9%) of health facilities performed rapid testing for mothers with unknown HIV status in the maternity/labor ward in the last 3 months. This disagreed with the study done in Ethiopia which stated "HIV testing and counseling for pregnant women are available in almost all facilities" [13]. This could be due to shortage of HIV testing kit as 94.1% of the health facilities reported lack of supplies. Three fourth (76.4%) of them had given ARVs to sero positive mothers in maternity/labor ward in the last three months. Seventy (78.7%) had given ARVs to newborns in maternity/labor ward in the last three months (PMTCT).

About 83.1% and 7.9% of them performed a breech delivery and craniotomy in the last three months respectively. Only one hospital was present and assessed. Unlike Study conducted in Iraq which indicated that only 26.3% of hospitals had been able to provide at least eight signal functions for CEmOC facility, the hospital performed all nine CEmOC signal functions [13].

CONCLUSION AND RECOMMENDATIONS

Most south Gondar zone public health facilities had successfully performed the seven BEmONC signal functions and the hospital had done including cesarean delivery and blood transfusion as intended. However, the blood is from hospital blood bank. Hence, the researchers recommend the zone to establish central blood transfusion with in the hospital. About one in three of the health facilities had performed new-

born resuscitation and used partograph. Majority of the health facilities had not provided special or intensive care to a preterm or low birth weight baby in the last three months. There were still limitations in rapid HIV testing for pregnant women and ARVs provision. There were also gaps in conducting breech delivery and performing craniotomy.

The implication of the study findings regarding the practice of BEmONC in the study site was more than average. To that end, appropriate strong training of health care professionals on BEmONC and how to use partograph, how to conduct breech delivery and craniotomy procedure could potentially solve the problem. Training of neonatal nurses needs to be also strengthened. Besides, availing the necessary equipment and supplies and solving management issues by the regional health bureau and concerned stakeholders.

COMPETING INTEREST

The authors declare that they did not have competing interests.

ACKNOWLEDGEMENTS

The researchers express their heartfelt thanks to Debre Tabor University for funding this study. In addition, they would like to thank the study participants for their willingness to participate in the study, without whom this research would be impossible.

crucial to address the gaps identified.

Corresponding Author:

Bedilu Abebe Abate

. Debre Tabor University, College of Health Sciences, Public Health Department

E-mail:bediluab@gmail.com

REFERENCES

1. WHO, UNFPA, UNICEF, AMDD. Monitoring emergency obstetric care: a handbook. WHO; 2009. p. 4-9.
2. UN. The Millennium Development Goals Report 2015. Geneva: United Nations Publications; 2015.
3. Lawn JE, Lee AC, Kinney M, Sibley L, Carlo WA, Paul VK, et al. Two million intrapartum-related stillbirths and neonatal deaths: Where, why, and what can be done? International Journal of Gynecology and Obstetrics 2009;107:S5-S19.
4. Alkema L, Chou D, Hogan D, Zhang S, Moller A-B, Gemmill A, et al. Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. The Lancet2015:1-13.
5. UN. Transforming Our World: The 2030 Agenda For Sustainable Development: Finalised Text for Adoption. UN; 2015.
6. Lawn J, Cousens S, Zupan J. 4 million neonatal deaths: When? Where? Why? Lancet2005; 365:891-900.
7. Oyerinde K, Baravilala W. Alternative Measures of Spatial Distribution and Availability of Health Facilities for the Delivery of Emergency Obstetric Services in Island Communities. Matern Child Health J 18; 2014:2245-9.
8. Otolorin E, Gomez P, Currie S, Thapa K, Dao B. Essential basic and emergency obstetric and newborn care: From education and training to service delivery and quality of care. International Journal of Gynecology and Obstetrics 2015;130(suppl):S46-S53.
9. Najam R, Gupta S, Chowdhur H. Pattern of Obstetrical Emergencies and Fetal Outcomes in a Tertiary Care Center. Acta Medica International 2015;2(1):105-10.
10. Ministry of Health, PMNCH, WHO, Bank W, AHPSR. Success Factors for Women's and Children's HeEDHS. Ethiopian demographic and health survey. Addis Ababa: CSA; 2011.
11. EDHS. Ethiopian demographic and health survey. Addis Ababa: CSA; 2011.
12. Ethiopian Demographic and Health Survey. Key Indicators Report, Addis Ababa: CSA; October, 2016.
13. Atkure Defar, Abebe Bekele and Theodros Getachew et al. Evaluation of Maternal and newborn health services in selected 25 districts of Ethiopia. Ethiopian Public health association abstarct book of the 26th EPHA annual conference, February 26 to 28, 2015 Bahirdar, february 2015 Addis Ababa.
14. Theodros Getachew, Atkure Defar, Abebe Bekele et al. Maternal and newborn health service provision in Ethiopia - SPA+). Federal Democratic Republic of Ethiopia. Ministry of Health. Secial bulletin 17th annual review meeting 2015.arm17-doc 04/15.
15. Pattinson RC, Makin JD, Pillay Y, Van den Broek N, Moodley J.Basic and comprehensive emergency obstetric and neonatal care in 12 South African health districts. S Afr Med J. 2015 Apr;105(4):256-60.
16. United Nations. The Millennium Development Goals Report. United Nations. 2011. Available: http://

mdgs.un.org/unsd/mdg/Resources/Static/Products/Progress2011/1131339%20(E)%20MDG%20Report%20201 1_Book 20LR.pdf.

17. World Health Statistics Report. 2014.
18. Ameh C, Msuya S, Hofman J, Raven J, Mathai M, Broek Nvd. Status of Emergency Obstetric Care in Six Developing Countries Five Years before the MDG Targets for Maternal and Newborn Health. PLoS ONE2012;7(12): e49938.
19. Worku AG, Yalew AW, Afework MF. Availability and components of maternity services according to providers and users' perspectives in North Gondar, northwest Ethiopia. Reproductive Health 2013; 10:43
20. Echoka E, Kombe Y, Dubourg D, Makokha A, Evjen-Olsen B, Moses Mwangi1, et al. Existence and functionality of emergency obstetric care services at district level in Kenya: theoretical coverage versus reality. BMC Health Services Research 2013; 13:113.
21. Mirkuzie AH, Sisay MM, Reta AT, Bedane MM. Current evidence on basic emergency obstetric and newborn care services in Addis Ababa, Ethiopia; a cross sectional study. BMC Pregnancy and Childbirth 2014; 14:354.
22. Ziraba AK, Mills' S, Madise N, Saliku T, Fotso J-C. The state of emergency obstetric care services in Nairobi informal settlements and environs: Results from a maternity health facility survey. BMC Health Services Research 2009; 9:46.
23. Kongnyuy EJ, Hofman J, Mlava G, Mhango C, Broek Nvd. Availability, Utilisation and Quality of Basic and Comprehensive Emergency Obstetric Care Services in Malawi. Maternal Child Health 2009; 13:687-94.
24. Wilunda C, Oyerinde K, Putoto G, Lochoro P, Dall'Oglio G, Manenti F, et al. Availability, utilisation and quality of maternal and neonatal health care services in Karamoja region, Uganda: a health facility-based survey. Reproductive Health 2015; 12:30.
25. Levine AC, Marsh RH, Nelson SW, Tyer-Viola L, Burke TF. Measuring access to emergency obstetric care in rural Zambia. Int J Emerg Med 2008; 1:113-9.
26. Ameh CA, Bishop S, Kongnyuy E, Grady K, Broek NVd. Challenges to the Provision of Emergency Obstetric Care in Iraq. Matern Child Health J 2011; 15:4-11.

CONTRACEPTIVE NEEDS AND PRACTICE OF WOMEN IN THE EXTENDED POST-PARTUM PERIOD IN ADDIS ABABA, ETHIOPIA

Hailegeorgis Awulachew[1], MD; Shiferaw Negash[2], MD, MSc, Yemisrach Getiye[3], BSc, MPH; Lukman Yusuf, MD[4], Msc, PhD
[1,2,4] Addis Ababa University- Ethiopia
[3]Center for International Reproductive Health Training- Ethiopia

ABSTRACT

BACKGROUND: Family planning is the most cost-effective intervention to improve health outcomes in reproductive, maternal and child health. Extended post-partum defined as one-year post-birth period, 95% of low and middle-income countries women want to avoid a pregnancy within the next two years, but 70% are not using contraception.

OBJECTIVE: To determine the magnitude and factors associated with contraceptive needs and practices of women during extended postpartum period in Addis Ababa, Ethiopia.

METHODS: Institution based cross sectional study used. Women in the reproductive age group within their first year after delivery who came to selected health facilities with their infants for immunization or child health clinics were interviewed. Epi-Info version 7 and SPSS version 21 were used for data entry & analysis. Descriptive statistics were used to summarize the data. Bivariate and multi variable logistic regression model were used to see an association between variables.

RESULT: Eight hundred thirty three post-partum mothers were interviewed. Mean age (± 1SD) of mothers at their last delivery was 27.3 (± 4.5) years. The median number of pregnancy was 2. Regarding reproductive intention, 45.0% of mothers want to space the next pregnancy for more than two years. Among the 92.6% of mothers who wanted to use contraceptive method, 70.9% of them use modern contraceptives which give contraceptive prevalence rate of 65.7% .

CONCLUSION: Reproductive intention, resumption of menses and sexual intercourse, knowledge, discussion with partner, post-partum visit and family planning counseling were found to be factors associated with post-partum family planning practice. Improving the knowledge on long term family planning methods and lactational amenorrhea method should be strengthen.

KEY WORDS: Post-partum family planning, Post-partum contraceptives and family planning in extended post-partum period.

(Ethiopian Journal of Reproductive Health 2017;9:17-24)

INTRODUCTION

Family planning (FP) is one of the most cost effective and high yield interventions to improve health outcomes in reproductive, maternal and child health. While family planning is important throughout an individual's and couple's reproductive life, postpartum family planning (PPFP) focuses on the prevention of unintended and closely spaced pregnancies[1].

ACCESS-FP defines the extended postpartum period as one full year post-birth[2]. The postpartum period presents a rising risk of unwanted conception. By 7-9 months after birth, most women become exposed to pregnancy but do not want to become pregnant and do not obtain contraceptive protection. Such women have experienced a return of menses, are not abstaining from intercourse and are unprotected from conception[3].

Globally, an estimated 287, 000 maternal deaths occurred in 2010. Sub-Saharan Africa accounts for 56%, which is mainly due to complications associated with pregnancy and childbirth [4]. Ethiopian Demographic and health survey (EDHS) 2016 also reported that pregnancy related mortality in Ethiopia is 412[5]. Since 2010, 95% of women in low- and middle-income countries want to avoid pregnancy within the next two years, but 70% are not using contraception[6].

Pregnancies within the first 12 months after birth are at highest risk of adverse health outcomes to the mother and child. Because of these, spacing pregnancies at least two years apart can avert an estimated 10% of infant deaths and 21% of deaths in children ages 1 to 4 globally[6].

Post-partum fertility and contraception are not well understood by policy makers, health service providers and women themselves [7]. Postpartum women experience amenorrhea, or the absence of menses, for varying lengths of time and their fertility can return before menses resumes, even when breastfeeding. Postpartum family planning programs also must understand the clinical safety standards applied to different contraceptive methods across the 12 month period following birth, taking the mother's breastfeeding status into special consideration[6].

There is no recent study done on contraceptive needs and practice of women in the extended postpartum period in Addis Ababa. Therefore, this study intended to identify the needs and practices of contraception among women in the extended postpartum period.

METHODS

Institution based cross sectional study was conducted in public health centers of Addis Ababa from June 15, 2015 to July 31, 2015. Sample size was determined using single population proportion formula with Z $\alpha/2$ at 95% confidence level is 1.96 and margin of error between the sample and the Population is 5%. Since the contraceptive prevalence rate during the EPPP in Addis Ababa is unknown, we use the prevalence of modern contraceptive use and contraceptive needs during extended post-partum period in Bahir Dar, Northern Ethiopia, which is 48.8% and 72.3% respectively. By taking maximum sample size, considering a design effect of 2 for multi stage sampling and considering 10% non-response rate, the final sample size became 845.

From total sub cities in Addis Ababa, three were chosen by simple random sampling method. Out of each selected sub city, 30% of health centers were selected. The number of study participants were allocated proportionally based on patient flow one month prior to data collection. According to EDHS 2016 report, 80.9% of women age 15-49 giving birth in the two years before the survey had no post-natal checkup and 16.5 of them had post-natal check-up withintwo days of delivery. Therefore, the ideal place to found post-natal mother is while they came for immunization and child health clinic since 89% of children received all basic vaccinations in Addis Ababa (EDHS 2016). According to EDHs 2016, in Addis Ababa 93.1% of children aged 12-23 months received measles and 89.2% had completed all the basic vaccinations [5]. Women in the reproductive age group who are within the first year after delivery and came to selected health facilities during the time of data collection were taken as a study population whereas women with less than six weeks postpartum, with seriously ill infants and those who came from outside of Addis Ababa were excluded.

Data were collected using structured questionnaire. The dependent variable is contraceptive need and practice during the extended postpartum period and the independent variables are socio-demographic characteristics, Reproductive characteristics, Client related factors and health facilities related factors.

Data were coded, checked and entered using Epi-Info version 7.0 and exported to SPSS Version 21.0. The data categorized and summarized with descriptive statistics to describe the study population in relation to relevant variables. Cross tabulation was also performed to see the distribution of different variables in relation to outcome variable. Bivariate logistic regression analysis with the help of odds ratio along with their 95% confidence interval was used to assess the degree of association between dependent and independent variables and test significance of the association. Those variables which had association with significance level of p-value of <0.2 were entered into multivariate logistic regression model to identify the important determinants by controlling possible confounding effects.

Ethical clearance was obtained from Research Ethics Committee (REC) of School of Medicine in Addis Ababa University. Following the endorsement by the REC, Addis Ababa health bureau was informed about the objectives of the study and then written permission from Addis Ababa health bureau was presented to respective health facilities. Informed verbal/ written consent was obtained from each selected postpartum woman to confirm willingness. Each woman was informed about the purpose of the study and the right of the women not to participate in the study. Also affirm that they are free to withdraw consent and to discontinue participation without any form of prejudice. There was no any serious harm to the participants. Furthermore, confidentiality was assured during data collection, analysis and dissemination of result.

RESULT

A total of 833 women who are within the first year after delivery were interviewed making the response rate 98.6%. The mean age (± 1SD) of the study participants at their last delivery was 27.3 (± 4.5) years. Seven hundred forty-three (89.2%) were married, 587 (70.5%) were Orthodox Christians and 417 (50.1%) were house wives.

The median number of previous pregnancy (gravidity) was two (range 1-7). Of total participants, 192 (23.0%) of mothers had previous history of abortion and 28 (3.4%) had previous history of stillbirth. From 484 mothers who had more than one pregnancy, 136 (28.1%) delivered within two years of their previous delivery. From all respondents, 104 (12.5%) of their current birth were unwanted or mistimed. Out of which, 64 (61.5%) did not use any form of contraceptive. Regarding reproductive intention of the study subjects, 375 of 833 women (45.0%) want to space the next pregnancy for more than two years. Of the total respondents; 789 (94.7%) started breast-feeding immediately after delivery, 467 (56.1%) of them resumed their menses within 12 weeks and 543 (90.7%) started sexual intercourse within 12 weeks.

Among the total study participants, 809 (97.1%) had at least one antenatal care (ANC) visit for the index pregnancy. Eight hundred thirteen had contact with health care provider in the post-partum period at least once prior to the interview time, the commonest reason being child immunization (78.8%), followed by post-partum care (59.7%). Of 821 mothers who delivered in health institutions, 80% of them were counseled for post-partum family planning. From the total respondents, 801 (96.2%) know at least one type of contraceptive methods. Of those, most of them know injectable, pill and intrauterine contraceptive device (IUCD) respectively. Considering the standard criteria to be fulfilled for lactational amenorrhea method (LAM), less than half (45.5%) of 387 mothers who heard about LAM stated it correctly.

Seven hundred seven (84.9%) mothers among the total respondents discussed with their partners about use of FP and 771 (92.6%) mothers wanted to use FP method in their EPPP. Out of these, 547 (70.9%) women use modern FP methods which give contraceptive prevalence rates (CPR) 65.7%. Two hundred nine (38.2%) use injectable, followed by 174(31.8%) implant.

Of the total contraceptive users, 515 (94.1%) started using FP within 12 weeks of post-partum followed by 13-24 weeks. In relation to resumption of menses 259 (47.3%) started using before their menses resume. Specially, injectable was used by 41.9 % of women who wanted to limit.

The 286 mothers who did not use FP methods mentioned different reasons. One hundred two (35.7%) mothers stated that currently their husbands are not with them or have infrequent intercourse. Among 286 women who are not using contraception at time of interview, 136 (47.6%) had a need to space the next pregnancy and 70 (24.5%) want to limit their number of children. The total unmet need for family planning is 16.3%; 11% for spacing and 5.3% for limiting.

According to bivariate analysis socio demographic characteristics, like marital status and religion were

significantly associated with FP practice in the EPPP. Married women use PPFP 2.5 times than single women (p–value <0.01; COR 2.5; 95% CI (1.42-4.42)). Catholic women in the EPPP are 76% less likely to utilize FP compared to orthodox women (p-value <0.05; COR 0.24; 95% CI (0.07-0.82)). Those mothers who want to space or limit their family size tend to practice one method of family planning 3.5 times higher than those mothers who want another pregnancy within two years' period (p-value <0.001; COR 3.5; 95% CI (1.7-7.25) and p-value <0.001; COR 3.5: 95% CI (1.67-7.52) for spacing and limiting respectively).

Resumption of menses increases the utilization of PPFP 4.3 times (p-value <0.01; COR 4.33; 95% CI (3.19-5.89)). And women who resume of sexual inter course use PPFP method by 7.7-fold compared with mothers who did not resume sexual intercourse (p value <0.001; COR 7.7; 95% CI (5.47-10.71)). Initiation of breast feeding is found to be another factor that increases post-partum family planning utilization 2.4 times (P-value< 0.05; COR 2.41; 95 % CI (1.31-4.45)).

Women who know at least one method of PPFP are 6.2 times likely to practice (p-value <0.001; COR 6.2; 95% CI (2.74-13.92)). Women who had no discussion with their partner about FP 85% less likely to practice PPFP (p-value <0.001; COR 0.15; 95%CI (0.1-0.23)).

From health service utilization; ANC and post-natal visit increase the use of PPFP by 4 and 3 times (p-value 0.002, COR 4, 95%CI (1.69-9.45) and p-value <0.05; COR 3;95%CI (1.19-7.3)) respectively. Family planning counseling also increases the use of PPFP by 1.6 (p-value <0.05; COR 1.6; 95%CI (1.14-2.29)).

After controlling confounders in multivariate logistic regression, reproductive intention, resumption of menses and sexual intercourse, knowledge about PPFP methods, discussion with partner, post-partum visit and family planning counseling were factors that are associated with PPFP practice. Women who want to space their next pregnancy for at least two years and those who want to limit their family size were 4.7 and 10.5 times likely to use PPFP (p-value <0.001; AOR 4.7; 95% CI (1.9-11.4) and P-value <0.001; AOR 10.5; 95% CI (4.0-27.6)) respectively. Resumption of menses and sexual intercourse increase PPFP utilization by 5.6 and 5.2 fold (p-value <0.001; AOR 5.6; 955 CI (3.7-8.3) and P-value <0.001; AOR 5.2; 95% CI (3.37-8.02)) respectively.

Knowing at least one method of PPFP is another determinant factor for its practice, in which it increases by 18.4 fold (P value <0.001; AOR 18.4; 95% CI (5.1-66.2). But not discussing with partner about PPFP is a hindering factor for their PPFP utilization. Women who did not discuss with their partners were 80% less likely to use PPFP method (p-value <0.001; AOR 0.2; 95% CI (0.11-0.36)).

The other two important factors that showed association with PPFP practice were related with health care service. Women who had a visit in a health facility during the post-partum period for post-natal care, child immunization, growth monitoring, chronic illness follow up and emergency service were 5.9 times likely to use PPFP method (p-value <0.001; AOR 5.9; 95% CI (1.68- 20.34)). Similarly, women who were counseled about FP 2.2 times likely to practice PPFP

compared with women who were not counseled (p-value <0.001; AOR 2.2; 95% CI (1.33-3.51)).

DISCUSSION

This study found that contraceptive prevalence rate during EPPP is 65.7%. This result is higher than a study done in Gondar which was 48.4%[8]. This might be due to the difference in the study setting. The most common contraceptive used was injectable (38.2%); and long acting methods account for 43.5 % of users. The utilization of long acting methods is much higher than the study done in Gondar (3.4%)[8] and Nigeria (7.6%) [9]. This difference could be due to the setting difference between the studies and better adoption of long term methods in Addis Ababa.

In this study, women who want to space and limit their number of children are more likely to use PPFP. Which is supported by a research done in south east Nigeria on prevalence and determinants of unmet need for family planning[10].

From women who wanted to limit, only 29% of them are using long term contraceptive methods. This may be due to their knowledge as seen on their knowledge of contraceptive method which can be used in the EPPP where short term methods were mentioned more frequently than the long-term methods. This is also supported by EDHS 2016 finding on knowledge of contraceptive methods in which majority of women knew pills and injectable [5]. A study done in Pakistan also showed that 82% of women using contraception in the EPPP used short term methods[11]. This could be due to lack of obtaining reasonable information about the available options of contraception.

Women who knew at least one method of contraceptive method which can be used in the EPPP are more likely to use it. This is due to the fact that if they knew the method of contraception the tendency to practice it is better than those who have no idea on what they can use or who believe that none of the modern contraceptives can be taken in the EPPP.

Regarding resumption of menses, 423 (77%) of cycling women used PPFP. This shows significant association between resumption of menses and PPFP practice. Women who resumed sexual intercourse are also high likely to practice PPFP. This is comparable to the findings of the studies done in Gondar and analysis of 17 countries by USAID and ACCESS[7, 8]. This might be due to the women might not feel that they are at risk of pregnancy unless menses resume or resumed intercourse irrespective of their post-partum period and status and type of breast feeding.

Women who had post-partum visit to health institutions were more likely to start using FP in the EPPP. This finding is similar with the study done in Gondar which showed nearly two-fold increase in utilization of FP among women had a post-partum visit in comparison to those who had no visit. This may be because of increased probability of receiving counseling on FP at different service delivery points in the health institution[8]. In conjunction with this, woman who received post-partum FP counseling are more likely to practice modern contraceptives as it raises their awareness.

Women who have no discussion with their partner are less likely to initiate PPFP methods .This could be due to lack of perception of the risk of pregnancy, lack of supportive input from partners or even the

fact that the partner might not be around makes the women to feel as there is no risk for pregnancy.

Among respondents who did not use contraception, the commonest reason mentioned was that their husbands are not around or have infrequent sexual intercourse. This finding is also reported by a community based study done in Gondar[8]. This may lead to the women underestimating their risk of having pregnancy when they are involved in sexual intercourse, which could end up with unplanned and mistimed pregnancy.

The factor that negatively affected the practice of contraception in the EPPP is not having discussion with their partner about FP. The major reasons for not using contraceptive were fear of side effect, lack of knowledge and being on breast feeding for the previous child. The main strength of this study is, it is a facility based study in settings where most mothers came for immunization and child health clinic services.

CONCLUSION

Different factors were found to be positively and negatively associated with contraceptive practice in the EPPP. Factors that increased contraceptive utilization in the EPPP are future reproductive intention, resumption of menses and sexual intercourse, knowledge of one method of contraceptive method which can be used in the EPPP, having post-partum visit and obtaining counseling on PPFP.

Optimal counseling on FP at all contact points with pregnant as well as women in the EPPP and increase the awareness of mothers on criteria to use LAM, use of FP methods and the risk of closely spaced pregnancy can improve utilization of FP in EPPP.

COMPETING INTEREST: The authors declare that they have no competing interest.

Corresponding Author:

Hailegeorgis Awulachew[1], MD,

Addis Ababa University- Ethiopia

E-mail:

REFERENCES

1. WHO. programmatic strategies for Post partum family planning. 2013.
2. ACCESS-FP, USAID. Family planning needs during extended postpartum period in Ethiopia. 2005.
3. John A. Ross and William J. Winfrey.Contraceptive use, intention to use &unmet need during the extended postpartum period; *International family planning perspectives.* 2001. 27(1):20-27.
4. WHO, UNICEF, UNFPA and The World Bank.Trends in Maternal Mortality: *1990-2010*. 2012.
5. Mary Eluned Gaffielda, Shannon Eganb and Marleen Temmermana. Its about time:WHO and partners release programmatic strategies for post partum family planning. *Global Health Science and Practice*. 2014. **2**(1): 4 -9.
6. Maria Borda and william Winfrey. Postpartum Fertility and Contraception: An analysis of findings from 17 countries. March, 2010.
7. Central Statistics agency and ICF international. Ethiopian Demographic and health survey 201*1*. March 2012.
8. Yeshiwas Abera, Zelalem Birhanu Mengesha and Gizachew Assefa Teema. Postpartum contraceptive use in Gondar town, Northwest Ethiopia: a community based cross sectional study. *Biomed central,2015*. **15**(19).
9. Ambrose Aknlo, Adeleke Bisiriyu and Olapeju Esimai. Influence of use of maternal health care on post partum contraception in Nigeria. USAID, Feb 2013.**92**.
10. Anthony O. Lgwegbe, Joseph O. Ugboaja and Emmanuel N. Monago. Prevalence and determinants of unmet need for family planning in Nnewi, south-east Nigeria. *International Journal of Medicine and Medical Sciences*. August, 2009,**1**(8):325-329.
11. Syedsaman Naz and Arshad Mahmood. Uptake of Contraception following childbirth: An Opportunity to Address High Unmet Need in Pakistan. 2008-09.

ATTITUDES OF HIV-POSITIVE PREGNANT WOMEN TOWARD FAMILY PLANNING AND ITS ASSOCIATED FACTORS IN PUBLIC HOSPITALS OF ADDIS ABABA, ETHIOPIA

Nitsuh Addis[1], *Eskinder Kebede*[1]
[1]*College of Health Sciences, Addis Ababa University*

ABSTRACT

BACKGROUND: Human Immunodeficiency Virus infection of a reproductive age woman has an impact on women's health, risk of transmission to her family and her fertility decisions. Contraception has a great importance in preventing unintended pregnancy and decrease maternal to child transmission of the virus.

OBJECTIVE: This study was aimed to assess attitudes of HIV-positive pregnant women towards family planning in selected Public Health institutions of Addis Ababa, Ethiopia.

METHODS: A cross-sectional study was conducted among HIV-positive pregnant women attending ANC clinics in purposely selected three teaching hospitals in Addis Ababa from April to July 2016. A total of 173 women were participated in the study. Data was collected using interviewer administered structured questionnaire and the data was analyzed using SPSS version 21 statistical software. Binary and multiple logistic regression were done to identify the associated factors of intensions to use contraception. A level of $P<0.05$ was considered statistically significant.

RESULT: Out of the total 173 respondents, about 87.9% were intended to use contraception after delivery. Unintended pregnancy rate of the current pregnancies was 34.7%. Condom use other than its contraceptive purpose was 27% and 26% before pregnancy and during current pregnancy respectively. Prior history of use of contraception and age of the woman had shown an independent association with intention to use contraception.

Conclusion: Every effort should be made to satisfy the good attitude for the contraception so as to minimize unintended pregnancy and pediatric HIV. At all levels knowledge should be transmitted and condom should be available easily and offered.

KEY WORDS: Unintended pregnancy, contraception, family planning

(Ethiopian Journal of Reproductive Health 2017;9:25-35)

INTRODUCTION

Prevalence of Human Immunodeficiency Virus (HIV) is the highest in sub-Saharan Africa region [1] and women comprise 58% of the adults living with HIV in this region. The incidence of HIV in children was also highest in sub-Saharan Africa, representing more than 90% of children worldwide who became newly infected with HIV [2].

Planning of pregnancy in HIV positive mother is one of the most important interventions to reduce maternal-to-child transmission (MTCT) of HIV, as unplanned could pose a greatest risk of MTCT. Family planning (FP) is one of the cost effective interventions for preventing both maternal-to-child transmission (PMTCT) of HIV and maternal morbidity and mortality from unintended pregnancy[3]. Condom prevent infection transmission and another more effective contraceptive for pregnancy prevention[4].

Reviewed articles showed that only 20-43% HIV-infected women in sub-Saharan Africa used family planning[5]. It is estimated that 14 million unintended pregnancies occur each year in sub-Saharan Africa[6]. Factors associated with family planning use among married HIV positive women were urban residency, and better educational status[7]. Studies also revealed that lack of female decision-making power, poor economic resources, low quality care at family planning services, and desire for large families were barriers to use family planning[7-9].

Fertility desire in 2011 in a study done in Addis Ababa showed, 43.3% of HIV Positive mothers desired to have children in the future, out of which 71.5% stated positively that they intended to give birth in the near future, and of these 26.8% were pregnant at the time of the study[10].

A study in Ethiopian found that after people tested HIV-positive, their intention to have children reduces significantly[11].

Although in Kenya the majority (87%) of HIV-infected pregnant women participating in a PMTCT trial expressed an intention to use FP in the future, high proportion of unintended pregnancies (59%), thus emphasizing a gap between intent and practice[12]. In a cross- sectional study among HIV-positive women on antiretroviral therapy (ART) in Kigali, Rwanda, 62.7% had become pregnant unintentionally [8,13,14]. A comparative study done in Ethiopia, Black lion and Gandhi hospitals in 2013 shows unintended pregnancy significantly occurred in HIV infected (56.3%) than uninfected pregnant women (29.5%)[15]. Factors which can contribute for unmet need are having little or incorrect knowledge of contraceptive options, limited access to family planning services and lack of integration between HIV and family planning services, fearing stigma and discrimination[16,17].

Socio-cultural factors play a large role in fertility decision-making. Eliminating MTCT will not be possible without addressing unmet needs for family planning. Understanding the attitudes of HIV-positive pregnant women towards family planning helps to target interventions to address the challenges and obstacles that reduce the use of family planning in the future.

METHODS

The study used a cross-sectional design. The survey was conducted at antenatal care (ANC) clinics of three teaching government hospitals (Tikur Anbessa hospital, Zewditu Memorial Hospital, and Gandhi Memorial Hospital). Gandhi Memorial Hospital is the only maternity government hospital in the country. The other two are tertiary referral hospitals which give maternity and other services too. The total number of deliveries in the three teaching hospitals per annum is close to 12,000. The study was conducted from April to August 2016.

The study population was all HIV positive pregnant women attending ANC services in these selected health facilities. Those HIV Positive pregnant women who were enrolled in ANC clinics and live at least for six months in Addis Ababa city was included in the study. Those HIV Positive pregnant women who were in labor, undergoing abortion or miscarriage and who have medical contraindication for future pregnancy were excluded from the study.

The sample size was computed using single proportion formula with Epi Info version 3.5.2. It considers 87% favorable attitude towards family planning among HIV positive pregnant women from a Kenyan study [12], 95% confidence level, and 5% margin of error. Based on these and by considering a 5% non-response rate, the final sample size was 183.

Quota sampling technique was implemented to select the study participants. Hence, all HIV positive pregnant women attending ANC clinics in the three teaching hospitals who fulfils the inclusion criteria were selected consecutively during the study period interval till the required sample size achieved.

The dependent variable was attitude towards contraception. The independent variables were maternal age, level of education, employment, number of living children, whether current pregnancy is planned, prior use of FP, future FP preferences, perception of FP acceptance by their spouse or partner, HIV serostatus of partner/husband, reaction of their spouse or partner to their decision about FP condom use, practice of condom use during pregnancy and marital status.

Data was collected using interviewer administered structured questionnaire developed from previous related studies. The questionnaire was translated in to the local language (Amharic) by experts in both languages and back translated to English by another person to ensure consistency and accuracy.

Six female nurses, two from each hospital, who had previous training on ART and/or HIV counseling, and previous experience in data collection were recruited. Moreover, training was given for two days on interview techniques, sampling and ethical issues, emphasizing the importance of safety of participants and interviewers, minimization of under reporting and maintaining confidentiality. A pre-test of the questionnaire was conducted in selected ANC units of the three hospitals which were not included in the main study.

The collected data was cleaned and entered into SPSS version 21 software program for analysis. Data entry was done by the researcher. Descriptive statistics, bivariate and multivariable logistic regression analysis were done to identify factors associated with attitudes of HIV-positive pregnant women towards family plan-

ning. Variables found to be significant at bivariate level, ($P < 0.05$), were included in to multiple logistic regression models. Then multivariable logistic regression analyses were used to calculate Odds ratio with 95% confidence interval to estimate association.

Approval was obtained from the research and publication committee of obstetrics department of college of health sciences of Addis Ababa University. Permission was obtained from medical directors and respective unit heads at each health institutions. Verbal consent was also obtained from each study participant. In order to make informed decision sufficient information was given to each participant. Confidentiality was maintained by conducting interview in private place.

RESULTS

Out of the total 183 sample size calculated, 173 pregnant women participated in the study yielding a response rate of about 94%. The mean age (± 1SD) of the participants were 28.8 (±4.8). About 80% (n=140) of the respondents had formal education while 19.1% (n=33) of them cannot read or write (Table 1).

Table 1. Socio-demographic characteristic of HIV positive pregnant women at ANC clinics of three teaching hospitals in Addis Ababa, 2016.

Socio-demographic characteristic	Value	N(n= 173)	Percentage
Age in years	20 – 24	27	15.6
	25 – 29	80	46.2
	30-34	40	23.1
	35 and above	26	15.0
Religion	Orthodox Christians	40	80.9
	Muslim	21	12.1
	protestant	8	4.6
	Catholic	2	1.2
	Other	2	1.2
Educational status	Higher education	27	15.6
	Secondary education	65	37.6
	Primary education	48	27.7
	No formal education	33	19.1
Occupation	unemployed	28	16.2
	house wife	80	46.2
	employed	65	37.6

About 20% (n=31) of the respondents were on their first pregnancy. Majority (n=131, 92.3%) of respondents had at least one live child. Majority of the current pregnancies (n=113, 65.3%) were planned while 34.7% (n=60) of the pregnancies were unplanned. About half of the respondents (n=88) knew their serostatus in the index pregnancy. For about half (n=83, 48%) of the respondents, their partners were also seropositive however in 19.7% (n=34) of them their partners were HIV negative. A third of mothers (n=56, 32.4%) did not know their partner's serostatus (Table 2).

Table 2. Obstetric characteristic of HIV positive pregnant women at ANC clinics of three teaching hospitals in Addis Ababa, 2016.

Variable		Frequency	%
Gravidity	C	31	17.9
		142	82.1
Is current pregnancy planned	Yes	113	65.3
	No	60	34.7
When did you know your HIV status?	During current pregnancy	88	50.9
	Before current pregnancy	55	31.8
	During previous pregnancy	3o	17.3
Is your husband seropositive for HIV?	Yes	83	48
	No	34	19.7
	Don't know	56	32.4
Number of live children	None	11	7.7
	One or more	131	92.3
	None		
	One or more		

Almost two-third (n=114, 65.9%) of mothers had history of use of one or more kind of contraceptive. Condom (26.5%), pills (23.9%) and injectable (24.8%) were the common types used. About 88% (n=157) of the study participants had good attitude to use contraceptive after delivery, while the rest had no plan to use in the near future (Table 3).

Table 3. Family planning characteristic of HIV positive pregnant women at ANC clinics of three teaching hospitals in Addis Ababa, 2016

Variable		Frequency	%
Have you ever used contraceptive?	Yes	114	65.9
	No	59	34.1
Do you want to use contraceptive in the future?	Yes	152	87.9
	No	21	12.1
Did you use condom after you knew your serostatus	No	71	41
	Sometimes	55	31.8
	Consistently	47	27.2
Do you use condom currently?	Yes	45	26
	No	126	73
Have you ever discussed about contraceptive with your partner?	Yes	125	73.1
	No	46	26.9

About 73% of the respondents did not use condom during the index pregnancy. The main reasons being their partners do not know they are seropositive (26.2 %), husband may not like condom (24.2%) or a quarter of them said they are pregnant and condom has no importance (Fig 1).

On multivariate logistic regression, Age of the respondents and prior use of contraception were found to be independent predictors to their intension to use family planning. Age ≤ 34 years was the age range that was a significant factor (AOR=5.5, p<0.03) for their intension to use FP. Those pregnant women ≤ 34 years of age were found to be 5.5 times more likely to use FP. Those pregnant women who used contraceptive before were found to be 6.24 times more likely to use FP (AOR=6.24, p<0.01). In this study, marital status was found to be a weaker determinant for their intension to use FP. Those respondents who discussed with their partner about contraceptive use were found to be 5.18 times more likely to use FP (AOR=5.18, p<0.07) (Table 4).

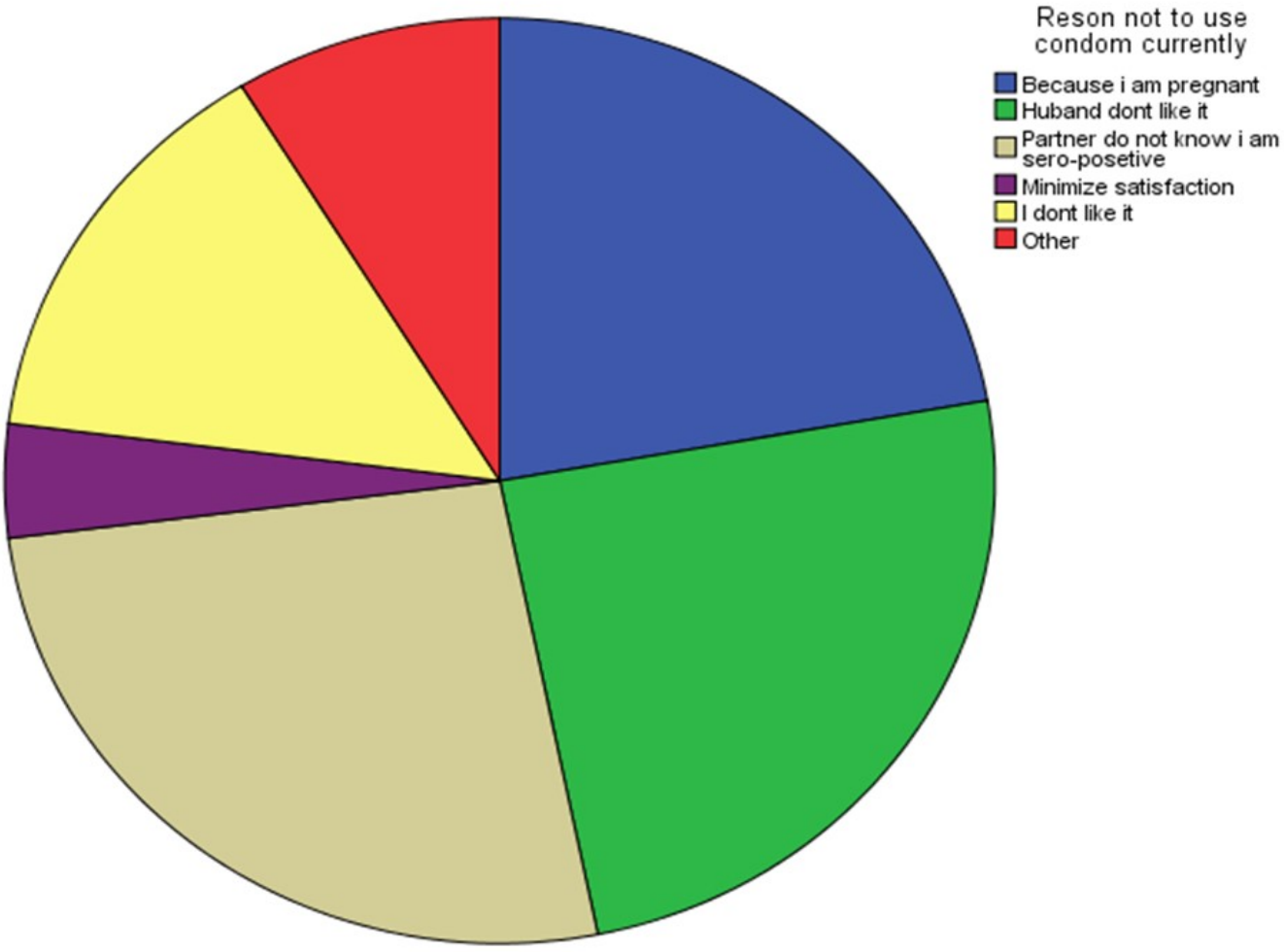

Figure 1. Reasons not to use condom currently among HIV-positive pregnant women at ANC clinics of three teaching hospitals in Addis Ababa, 2016

Table 4. Predictors of intention to use family planning of HIV positive pregnant women at ANC clinics of three teaching hospitals in Addis Ababa, 2016

Variable	Category	Intension to use FP		COD (95%CI)	AOR (95%CI)	P-value
		Yes	No			
Age	≤ 34 years	133	14	3.50 (1.25, 9.77)	5.5 (1.2, 25.57)	P<0.03
	> 34 years	19	7	1.00	1.00	
Marital status	Married	137	17	2.15 (0.64,7.23)	1.7 (0.39, 7.4)	P=0.47
	Others*	15	4	1.00	1.00	
Ever used contraceptive	Yes	110	4	11.1(3.54,35.00)	6.24 (1.54, 25.27)	P<0.01
	No	42	17	1.00	1.00	
Discussed with partner about contraceptive	Yes	115	10	3.61 (1.42,9.22)	5.18 (0.87, 30.75)	P=0.07
	No	35	11	1.00	1.00	
Did you use condom after you knew your serostatus	No	62	9	1.86 (0.69,5.00)	0.51 (0.00, 32.57)	0.13
	Sometimes	53	2	7.16 (1.48,34.60)	3.84 (0.73, 201.9)	
	Regularly	37	10	1.00	1.00	
Do you use condom currently	Yes	35	10	1.00	1.00	
	No	115	11	3.00 (1.17,7.62)	9.03 (0.16, 500.9)	0.28

DISCUSSION

The majority (87.9%) of HIV positive pregnant women participated in this study expressed their intention to use family planning in the future. However, this contrasts with the high proportion of unintended pregnancies (34.7%), thus emphasizing a gap between intent and practice. The finding of this study is consistent with other studies done on the rate of unintended pregnancy among HIV-positive women including a study in Kenya (59%)[12], in Cape Town, South Africa (61.6%) [13] and in Kigali, Rwanda (62.7%) [8]. Data from a large cohort study in Rakia, Uganda over the period 2000–2006 also revealed that nearly half of all pregnancies among HIV-infected women were unintended[14]. The high proportions of unintended pregnancy in this study were mostly due to avoidable causes including incorrectly using the contraceptives (66.7%). This problem can be prevented by proper counseling during pregnancy and offering after delivery at the appropriate time. This in turn helps to prevent significant pediatric HIV infection, improve maternal health and decrease health cost at large.

Apart from the availability and accessibility of family planning methods, religion, culture, educational status and age, as well as the attitudes and knowledge of HIV-positive women towards the available family planning methods, are important factors affecting the use and the choice of family planning methods [12]. World Health Organization (WHO) recommended also that dual family planning should be practiced by HIV-positive women. This includes a highly effective hormonal method used together with barrier methods, such as condoms[3]. Condoms have been found to be reliable for both the prevention of pregnancy and HIV infection, as well as other sexually transmitted diseases. Hormonal contraceptive methods are used as a back-up for the prevention of conception in case the condom bursts.

The Ethiopian government provides free family planning services for all who are in need. In this study, long acting contraceptive methods intrauterine contraceptive device (IUCD) and implants are the most preferred (50%) methods in those who intended to use contraception in the future. This finding is consistent with a study done in Kenya which showed modern FP methods (hormonal, barrier or permanent) were preferred by most of the women who intended to use FP [12]. The highest preference for long acting contraceptives methods in this study may be due to high rate of unintended pregnancy before current pregnancy as most were practicing condom alone or pills alone (26.5% and 23.9% respectively). A study done in Zambia also revealed that the highest rates of unintended pregnancy were observed among couples requesting condoms only (26.4/100CY) or oral contraceptives (20.7/100CY) [18].

There is a low acceptance of condom use in sub-Saharan Africa due to socio-cultural influences, gender and sexual norms, influences of poverty, and insufficient information. In Ethiopia prior to 2013, the overall annual distribution of condom ranged from 147 to 174 million which was over 50% less of the target. With the involvement of pertinent partners working in the area, a national condom strategy was drafted to ensure sustainable and equitable access to quality condoms. It also promotes correct and consistent condom use for prevention of HIV/ sexual transmitted infections and unplanned pregnancies among the sexually active population with emphasis on the most vulnerable[19]. However; in this study, only about 27.2% of respondents used condom consistently during coitus before pregnancy. This seems better than similar studies done in Africa including a study done in Kenya which is only 8%[12]. Absence of partner disclosure about serostatus, partner discomfort of using condom and knowledge gap on the importance of condom beyond contraception were the main reasons for not using condom in this study.

In this study, age ≤ 34 years and prior use of contraception have a strong association with positive attitude for family planning methods. This is consistent with the findings from other studies with a high percentage of unintended pregnancies in Uganda and Kenya (12, 14). These may be related to good knowledge and prior experience on the importance of family planning in general.

This study offers an insight to health planners about the attitudes and intensions of HIV-positive women and their partner towards FP. It is paramount to provide and expand HIV prevention programs in order to reduce unwanted pregnancies and the incidence of HIV-infected children.

ACKNOWLEDGEMENT:

The researchers would like to thank Ato Muluken Azage (BSC, MPH) and Ato Abebaw Nigussie (BSC, MSC) for their advice and assistance in the development of this thesis. Without their support, guidance and advices the accomplishment of this thesis would have been difficult. Our deepest gratitude also goes to pregnant women who participated in this research.

COMPETING INTERESTS

The authors declare that they have no competing interests

Corresponding Author:

Eskkndir Kebede, MD,

College of Health Sciences, Addis Ababa University

E-mail:

REFERENCES

1. UNAIDS. Global HIV/AIDS Response-Epidemic update and health sector progress towards Universal Access-Progress Report. Geneva, Switzerland. 2011.
2. UNAIDS. Report on the global AIDS epidemic 2012. 2012.
3. Reynolds HW, Janowitz B, Wilcher R, Cates W. Contraception to prevent HIV-positive births: current contribution and potential cost savings in PEPFAR countries. Sexually transmitted infections. 2008;84 Suppl 2:ii49-53.
4. Federal Ministry of Health Ethiopia. Federal HIV/AIDS Prevention and Control Office FHAPCO: Guidelines for Prevention of Mother-to-Child Transmission of HIV in Ethiopia. Addis Ababa. 2007.
5. Sarnquist CC, Rahangdale L, Maldonado Y. Reproductive health and family planning needs among HIV-infected women in Sub-Saharan Africa. Current HIV research. 2013;11(2):160-8.
6. Hubacher D, Mavranezouli I, McGinn E. Unintended pregnancy in sub-Saharan Africa: magnitude of the problem and potential role of contraceptive implants to alleviate it. . Contraception 2008;78:73-8.
7. Gelagay AA, Koye DN, Yeshita HY. Demand for long acting contraceptive methods among married HIV positive women attending care at public health facilities at Bahir Dar City, Northwest Ethiopia. Reproductive health. 2015;12(1):76.
8. Grabbe K, Stephenson R, Vwalika B, Ahmed Y, Vwalika C, Chomba E, et al. Knowledge, use, and concerns about contraceptive methods among sero-discordant couples in Rwanda and Zambia. Journal of women's health (2002). 2009;18(9):1449-56.
9. Hamid S, Stephenson R. Provider and health facility influences on contraceptive adoption in urban Pakistan. International family planning perspectives. 2006;32(2):71-8.
10. Negash S, Yusuf L, Tefera M. Fertility desires predictors among people living with HIV/AIDS at art care centers of two teaching hospitals in Addis Ababa. Ethiopian medical journal. 2013;51(1):1-11.
11. Bonnenfant YT, Hindin MJ, Gillespie D. HIV diagnosis and fertility intentions among couple VCT clients in Ethiopia. AIDS care. 2012;24(11):1407-15
12. Akelo V, Girde S, Borkowf CB, Angira F, Achola K, Lando R, et al. Attitudes toward family planning among HIV-positive pregnant women enrolled in a prevention of mother-to-child transmission study in Kisumu, Kenya. PloS one. 2013;8(8):e66593.
13. Cooper D, Moodley J, Zweigenthal V, Bekker LG, Shah I, Myer L. Fertility intentions and reproductive health care needs of people living with HIV in Cape Town, South Africa: implications for integrating reproductive health and HIV care services. AIDS and behavior. 2009;13 Suppl 1:38-46.

14. Nakayiwa S, Abang B, Packel L, Lifshay J, Purcell DW, King R, et al. Desire for children and pregnancy risk behavior among HIV-infected men and women in Uganda. AIDS and behavior. 2006;10(4 Suppl):S95-104.
15. Ayza A, Yusuf L. Unintended pregnancy among HIV_infected and unifected pregnant women in two teaching hospitals of Addis Ababa: comparative cross sectional study. Spciality certificate in Obstetrics and Gynecology thesis (unpublished), AAU. 2013.
16. Ramesh A, ., Kusol S, Paramote P. Correlates of unintended pregnancy among currently pregnant married women in Nepal BMC international health and human rights. 2009;9(17).
17. Kayembe PK, Fatuma AB, Mapatano MA, Mambu T. Prevalence and determinants of the use of modern contraceptive methods in Kinshasa, Democratic Republic of Congo. Contraception. 2006;74(5):400-6.
18. Wall K, Haddad L, Vwalika B, Htee Khu N, Brill I, Kilembe W, et al. Unintended pregnancy among HIV positive couples receiving integrated HIV counseling, testing, and family planning services in Zambia. PloS one. 2013;8(9):e75353.
19. Health TFDRoEMo. HIV/AIDS STRATEGIC PLAN 2015-2020 IN AN INVESTMENT CASE APPROACH ;The Federal Democratic Republic of Ethiopia Ministry of Health FEDERAL HIV/AIDS PREVENTION AND CONTROL OFFICE ADDIS ABABA, ETHIOPIA. 2014.

PARTOGRAPH CHART USE AMONG OBSTETRIC CAREGIVERS IN PUBLIC HEALTH INSTITUTIONS OF WEST SHEWA ZONE, OROMIA REGIONAL STATE, ETHIOPIA, 2015

Wakeshi Willi[1], *MitikeMolla*[2]
[1]*Department of Public Health, College of Medicine and Health Sciences, Ambo University, Ethiopia*
[2]*School of Public Health, College of Health Sciences, Addis Ababa University Ethiopia*

ABSTRACT

BACKGROUND: Partograph chart is recommended by WHO for developing countries to be used as an early warning system to identify prolonged labour and allow timely transfer. In Ethiopia, although most health institutions have been using partograph chart, there is limited information about its proper use and challenges faced by health workers.

OBJECTIVE: The aim of this study was to assess the magnitude of partograph use, factors that affect its use and challenges faced among obstetric caregivers in public health institutions of West Shewa Zone, Oromia Regional State, Ethiopia.

METHODS: The study used both quantitative and qualitative research approaches from December 2014 to February 2015. It was conducted in two randomly selected hospitals and five health centres. The study used logistic regressions model to assess independent predictors of partograph use among health providers.

RESULT: Out of 44 clients in the labour ward, only five items out of fifteen parameters listed on the partograph were completed. A fourth (24.7%) of all professionals did not know when to start partograph mapping and 36% had unfavourable attitude toward partograph use. Most (73%) indicated that partograph predisposes labouring women for unnecessary and untimely intervention. Midwives (AOR=13 CI=2.6-66.2), health workers who had knowledge about partograph use (AOR=7, CI= (2.8-21.8) and who work in facilities who had access to the tool (AOR=8.8 CI: 2.8-27.6), were more likely to use partograph. Health workers in higher institutions (hospitals) were less likely to use partograph (AOR=0.09, CI: 0.03-0.26).

CONCLUSION: Most health workers do not complete the tool properly. Lack of knowledge about the right start time of partograph plotting and its benefits has affected proper identification of the action line which will farther affect maternal and fetal outcome. In-service and pre-service training on partograph use, continuous mentoring, supervision and staff motivation could improve the proper use of the tool.

KEY WORDS: Partograph**,** knowledge, obstetric caregivers, public health institutions, Oromia Regional State, Ethiopia.

(Ethiopian Journal of Reproductive Health 2017;9:36-44)

INTRODUCTION

Every day, approximately 800 women die from avoidable causes related to pregnancy and childbirth[1]. In 2015 only, an estimated 216,000 maternal deaths occurred globally. Of these, about 99% of all preventable maternal deaths occur in developing countries, while more than half of these deaths occurred in sub-Saharan Africa [(1)]. In Ethiopia, the Maternal Mortality Rate (MMR) is still high at 353/100,000 live births according to 2015 United Nations estimates[2].

The need for reduction of maternal and neonatal mortality has been recognized globally as one of the World Health Organization's Millennium Development Goals (MDGs). Interventions targeted in improving maternal health and nutrition during pregnancy through effective antenatal care, ensuring safe and clean delivery, and providing immediate postnatal care has proved to decrease about 75% of neonatal deaths, more than 50% of deaths in the first year of life, and 99% of maternal deaths. Prolonged labour is a leading cause of death among labouring women and new born in the developing world. Interventions that can prevent complications from the major causes of death are known, and can be available even in resource-poor setting [3].

A systematic way to detect and handle complication at early stage is part of assuring quality service. Partograph is one of the strongest and cost-effective tools to prevent unnecessary delay and serve as frontrunner for obstetric caregivers[3,4]. Partograph is a pre-printed paper that provides a visual display of recorded observations carried out on mother and foetus during labour[5]. It is universally used as part of Safe Motherhood Initiative for improving labour management and reducing maternal and fetal morbidity and mortality[2].

In Ethiopia, labouring women suffer the dual burden of lack of access to professional assisted delivery and complications related to poor quality of care[6-7]. A study conducted in Jimma University Specialized Hospital indicated that 45.1% of labouring women had ruptured uterus. Cephalo-pelvic disproportion was the cause of obstructed labour among 67.6% of labouring women while 27.9% were caused by malpresentation[6]. These complications were preventable if correctly followed with partograph[8-10].

Therefore, the aim of this study was to explore the extent of utilization of the partograph and factors which inhibit skilled birth attendants from consistent utilization of partograph in West Shewa Zone public health institutions. It also delivers valuable information about the problem which helps the concerned body to take an intervention on identified gap.

METHODS AND MATERIALS

A mixed method research combining both institutional based survey and a qualitative research was conducted among health professionals from December 2014 to March 2015. This study was conducted in West Shewa Zone Oromia regional state, Ethiopia located 114 km away from the capital Addis Ababa. The population gets health services from three hospitals (one general and two primary) 89 health centres and 506 health posts, where all health centres and hospitals provide delivery services. There were 683 health workers in these health facilities during the study period.

A two-stage random sampling was used to select two

hospitals, five health centres and two hundred sixty-six obstetric health providers from each of the selected health facilities to participate in the survey.

The researchers conducted a key informant interview among 14 purposely-selected health workers. The key informants were health managers and head nurses from each health facility who did not participate in the survey.

A self-administered questionnaire adopted from similar studies [11-12] was used to collect data. The questionnaire was prepared in English and then translated into Afaan Oromo, the local language for Ormia Region and was pre-tested at Holeta Health Centre. Five data collectors and a supervisor who were native speakers of the language (Ormiffa) were trained for three days facilitated the data collection.

Forty-five delivery observations (ten cases from each hospital and five cases from each health centre) were made by the principal investigator who has a midwife background. All observations were made in obstetric wards during active first stage of labour. The observation focused on whether birth attendants used partograph and among those who used the completeness of the chart was assessed using a structured checklist.

Data were entered and cleaned using Epi info version 3.5.1 statistical software package. A double data entry was done on 10% of the collected data to control for errors and exported to SPSS version 16.0 for analysis. Following descriptive statistics, univariate, and binary logistic regressions analysis were carried out to assess associations of various factors and ascertain independent predictors of the outcome variables (knowledge and partograph use). The qualitative data, which were tape recorded, were transcribed and translated to English and analysed using narrative analysis and triangulated with the quantitative findings

RESULTS

Out of 266 study participants, 259 completed the questioners correctly obtaining a response rate of 97.4%. About 63% of obstetric care providers were females. The median age of the caregivers was 24 years. Most 158 (61%) were working at health centres (Table-1).

Table 1: Socio-demographic characteristics of obstetric care providers in West Shewa Zone, Oromia Ethiopia, 2015 (N=259).

Variable	No.	%
Sex		
Male	96	37.1
Female	163	62.9
Age groups		
20-24	140	54.1
25-29	76	29.3
30-34	37	14.3
35-39	2	0.8
>40	4	1.5
Place of work		
Hospital	101	39.0
Heath Centre	158	61.0
Profession		
General practitioner (MD)	8	3.1
Health officer	21	8.1
Nurse (BSc)	70	27.0
Nurse (Diploma)	77	29.7
Midwife (BSc)	32	12.4
Midwife (Diploma)	51	19.7
Total service year		
<5 years	201	77.6
5-10 years	36	13.9
>10 years	22	8.5

All 259 (100%) participants had heard about partograph chart. However, only about a third, 91(35.1%) respondents knew the exact definition of partograph chart. Most of the participant 243 (93.8%) believed that partograph chart should be plotted for all women in active first stage of labour. Three fourth of the health provideres194 (74.9%) indicated that the right time to start plotting the partograph is 4cm cervical dilatation. About a fifth, 50 (19.3%) mentioned that plotting should start on the onset of labour while very few 4 (1.5%) indicated that plotting of partograph should start if labour is complicated.

Our observation revealed that partograph chart was used for all labouring women. However, only five out of fifteen parameters on the partograph chart including client name, fetal heart rate, uterine contraction, parity and initial cervical dilatation were completed properly by most. In addition, time of rupture of membrane was recorded for 50% of women, status of amniotic fluid was recorded for 43.2%, and moulding of fetal head was not recorded at all (Table -2).

According to this assessment, most midwives 101 (39%) mentioned that lack of commitment by obstetrics care providers was the main reason for non-use of partograph chart. On the other hand, 100(38.6%) respondents indicated that plotting on the partograph chart was difficult and 72(27.8%) of the participants reported that they never had on job training about partograph use and had never used it. Only few, 40 (15.4%) reported absence of partograph charts in the labour ward as a problem.

Most 132 (51%) of care givers agree and 119(45.9%) strongly agree that skilled birth attendants must use a

Table 2: Knowledge of obstetric care givers about pantograph in West Shewa Zone, Oromia Ethiopia, 2015 (n=259).

Variable	No.	%
Awareness about partograph?		
Yes	259	100
No	0	0
Partograph use in the current institution		
Yes	219	84.6
No	40	15.4
Knowledge about the start time of plotting partograph		
When labour is diagnosed	50	19.3
At 4cm cervical dilatation	194	74.9
When complication is detected	4	1.5
At 3cm cervical dilatation	11	4.2
Knowledge about labouring woman who should be followed using partograph		
All primigravida	8	3.1
All multiparus	8	3.1
All women in active phase of labour	243	93.8
Reported challenges for partograph use*		
Lack of orientation on partograph use	64	24.7
Availability of other methods of observation	40	15.4
Lack of commitment.	101	39
Lack of supervision	86	33.2

partograph chart for every labouring woman. More than half, 207 (79.9%) of the respondent strongly agree that the partograph is beneficial. Most respondents, 158(61%) strongly agree that partograph is favourable as it alerts obstetric care givers of any deviation from normal and 145(56%) agree that it helps health care providers to identify problems and recognize complications early. On the other hand, 45 (17.4%) professionals strongly agree and 142(55%) agree that partograph misleads decisions as it puts labouring women's situation at alert line while the condition of labouring women and the foetus is in a stable situation.

Multivariate analysis indicated that, midwives [AOR (95% CI) =13(2.6-66.2)], those who have less than five years' service, [AOR (95% CI) = 6 (1.8-19.9)], those obstetric care providers who received on job training on partograph use were about 4 times more likely to utilize partograph than who have not received on- job training [AOR (95% CI) = 4 (0.9-21.7)] seeTable-3.

Table 3: Factors associated with partograph utilization among obstetric care givers in public health institution in West Showa Oromia Ethiopia; 2015

Variables	Partograph Utilization		Crude OR (95%CI)	AOR (95%CI)
	Yes	No		
	No (%)	No (%)		
Services year				
<5year	186(71.8)	15 (5.8)	7(2.5-19.5)	6(1.8-19.9) *
5-10 years	19 (7.3)	17(6.6)	0.6(0.22-1.9)	0.6(0.17-2.4)
>10year	8(3.1)	14(5.4)	1.00	1.00
Profession				
Midwives	138((53.3)	38(14.7)	11(2.6-47.5)	13 (2.6-66.2) *
Other staff	81(31.3)	2(0.8)	1.00	1.00
Work place				
Hospital	70(27)	31(12)	4(1.4-11.3)	0.09(0.03-0.26) *
PHCU	149(57.5)	9(3.5)	1.00	1.00
Availability of partograph				
Yes	192(74.1)	27(10.4)	3.4(1.59-7.4)	8.8(2.8-27.6) *
No	27(10.4)	13(5)	1.00	1.00
Knowledge				
Yes	85(71.4)	31(12)	18.(8.2-42.9)	7(2.8-21.8)
No	34(13.1)	9(3.5)	1.00	1.00
Training				
Yes	32(12.4)	209(80.7)	5(1.9-14.2)	4(0.9-21.7)
No	8(3.1)	10(3.9)	1.00	

DISCUSSION

This study found out that partograph use is almost universal in health facilities in Ambo town. However, the chart recording was mostly incomplete where only five items out of fifteen were recorded. Obstetric care providers with service year lower than five years and those who work in lower level health care units were more likely to have used partograph chart to evaluate the progress of labour. Obstetric providers who did not have access to the chart and had low knowledge about partograph chart use were less likely to evaluate the progress labour using the chart. Most obstetric care givers believed that partograph chart misleads decision of obstetric care givers as it puts a labouring woman's status at alert line (a cut of point on the chart that indicates the need for a surgical or other necessary intervention) while the woman's and the fetal condition is stable. Unlike previous studies conducted in Ethiopia and elsewhere, most obstetric care providers were using partograph to follow the progress of labour[5,11-13].

On the other hand, obstetric caregivers were recording only five indicators out of 15 such as the client's name, fetal heart rate, uterine contraction, parity and initial cervical dilatation. Indicators that are vital for the follow-up of the progress of labour such as moulding of fetal head were not recorded by all while cervical dilatation follow-up was recorded only by 50%. This suggests that caregivers are using the chart traditionally but not fully relying on it as follow-up tool. This may be related to the unfavourable attitude towards partograph chart use by a third of all caregivers in this study where they had reported that partograph misleads management as the progress of labour and the partograph alert line are not usually aligned in most labouring women. This usually leads to unnecessary interventions while the condition of both mother and foetus are within acceptably normal condition. This discrepancy needs further studies and improvement as this has affected the use of the simple and cost-effective chart, which may save the lives of many women in developing countries such as Ethiopia. Apart from attitudes, lack of commitment, lack of supervision and lack of orientation on how to use the partograph could be traced as sources of incomplete recording. In-depth interviews with four senior clinicians and six labour ward team leaders suggested that health care providers did not use partograph consistently because of workload, lack of commitment, negligence and also some of them do not appreciate the importance of partograph. On the other hand, they indicated that lack of skills, lack of supportive and facilitative supervision were problems related to partograph use. This finding is more or less consistent with the study in West Nigeria and Addis Ababa[13,14].

Obstetrics care givers, who had knowledge about the partograph (those who score above mean on the knowledge scale), had used the partograph chart more than those who scored less in the knowledge scale. The finding was higher than a study done in Cameroon[15], and a study conducted in Amhara region[16]. A fourth of all obstetric care providers do not know the right time to start plotting of the partograph chart, this could affect the outcome the labouring woman by delaying necessary care or introducing unnecessary referral. On the same line, few participants indicated

that health professionals need to have more knowledge about partograph use. Those who are using the chart correctly and consistently need encouragement.

Profession of obstetric care providers such as midwives and nurses were more likely to use the partograph chart than medical doctors and health officers. This might be due to the fact that, midwifes and nurses have more chance to be assigned in delivery wards and consequently received training on partograph use that might in turn improve their knowledge and skill of partograph use than others. This is in- line with the study done in other parts of Ethiopia[17].

In this study, health professionals working in hospitals were less likely to use partograph than those health care providers working at heath centres. This may be because health workers at health centres use partograph chart as an evidence to guide their action in case the labouring woman needs referral to higher health institution for better management. In contrast, health workers from hospitals may neglect to monitor the labouring mother using partograph tools since they can easily manage the complication at their own premises without wasting time for transporting to other facilities.

Health care providers who served less than five years were six times more likely to use partograph to monitor the progress of labour than those who served for more years. This may be related to two facts. The first one is that fresh graduates would try to avoid risk and try to function using existing procedures. The second reason may be related to the fresh memory forms their pre-service trainings. This can be supported by the fact that obstetric care providers who received on job training on partograph were about 4 times more likely to utilize partograph than those who have not received. Other studies in Africa documented similar findings[18-21].

CONCLUSION

The study revealed that high proportion of obstetric care providers use partograph to follow the progress of labour; however, it was not properly plotted in accordance with WHO partograph parameters which will further affect the ultimate use of the partograph. The fact that, most of them do not know the time of initiation of plotting needs appropriate intervention. The fact that obstetric caregivers believe that partograph misleads decision is of concern and needs further studies and assess the sensitivity and specificity of the tool. This study assessed only use of partograph thorough observation. It would have benefit from further analysis if the survey had identified the magnitude of use.

Corresponding Author:

Wakeshi Willi

Department of Public Health, College of Medicine and Health Sciences, Ambo University, Ethiopia

E-mail: wakeshewilli@gmail.com

REFERENCES

1. World Health Organization, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Trends in Maternal Mortality: 1990 to 2015.
2. Mishra CK, Thomas J, Kumar R, Basavaraj T, James AJ, Mohan A, Kuruvilla S, Basavaraj S. National leadership: driving forward the updated Global Strategy for Women's, Children's and Adolescents' Health. bmj. 2015 Sep 14;351:h4282.
3. Hogan MC, Foreman KJ, Naghavi M, Ahn SY, Wang M, Makela SM, Lopez AD, Lozano R, Murracy CJ. Maternal mortality for 181 countries, 1980–2008: a systematic Analysis of progress towards Millennium Development Goal 5. The Lancet. 2010 May 14; 375(9726):1609-23.
4. Pitkin RM. Primigravid labor: a graphic statistical analysis. Obstetrics & Gynecology. 2003 Feb 1;101(2):216.
5. Kwast BE, Lennox CE, Farley TM, Olayinka I. World Health Organization partograph in management of labour. The Lancet. 1994 Jun 4;343(8910):1399.
6. Kitila SB, Gmariam A, Molla A, Nemera G. Utilization of partograph during labour and birth outcomes at Jimma University. Journal of Pregnancy and Child Health. 2014;1(101). doi: 10,4172/jpch.1000101
7. Berhan Y, Berhan A. Causes of maternal mortality in Ethiopia: a significant decline in abortion related death. Ethiopian journal of health sciences. 2014; 24:15-28.
8. Fantu S, Segni H, Alemseged F. Incidence, causes and outcome of obstructed labor in Jimma University specialized hospital. Ethiopian journal of health sciences. 2010;20(3).
9. Bulty BG, Reddy OC. Analysis of Risk factors for Maternal Death and Delivery Complications' in West Shewa Zone, Oromia Region, Ethiopia: A Retrospective Study. Global Journal of Current Research Vol. 2014;3 (1):36-9.
10. Mathai M. The partograph for the prevention of obstructed labor. Clinical obstetrics and gynecology. 2009 Jun 1;52(2):256-69.
11. Ogwang S, Karyabakabo Z, Rutebemberwa E. Assessment of partogram use during labour in rujumbura health Sub district, Rukungiri district, Uganda. African Health Sciences. 2009;9(2).
12. Wakgari N, Tessema GA, Amano A. Knowledge of partograph and its associated factors among obstetric care providers in North Shewa Zone, Central Ethiopia: a cross sectional study. BMC research notes. 2015 Sep 4;8(1):407
13. K Fawole AO, Hunyinbo KI, Adekanle DA. Knowledge and Utilization of the Partograph among obstetric care givers in South West Nigeria. African journal of reproductive health. 2008;12(1):22-9
14. Yisma E, Dessalegn B, Astatkie A, Fesseha N. Knowledge and utilization of partograph among obstetric care givers in public health institutions of Addis Ababa, Ethiopia. BMC pregnancy and childbirth. 2013 Jan 8;137.

15. Smitha: PAMV. Effectiveness of individual teaching on knowledge regarding partograph among staff nurses working in maternity wards of selected hospitals at mangalore Cameroon. International Journal of Recent Scientific Research2013;4(7):1163 - 6.
16. Abebe F, Birhanu D, Awoke W, EjiguT. Assessment of Knowledge and Utilization of the Partograph among Health Professionals in Amhara Region, Ethiopia. Science Journal of Clinical Medicine2013;2(2):1-17.
17. Yisma E, Dessalegn B, Astatkie A, Fesseha N. Completion of the modified World Health Organization (WHO) partograph during labour in public health institutions of Addis Ababa, Ethiopia. Reproductive health. 2013 Apr 18;10(1):23.
18. Mathibe-Neke JM, Lebeko FL, Motupa B. The partograph: A labour management tool or a midwifery record? International Journal of Nursing and Midwifery. 2013 Dec 31;5(8):145-53
19. Opiah M, Ofi A, Essien E. Knowledge and utilization of partograph among Midwives in the Niger Delta Region of Nigeria. Afr J Reprod Health2012;16(1):125-32.
20. OIta B, Afiong O, Thomas OU. Evaluation of the Knowledge and Utilization of the Partogragh in Primary, Secondary, and Tertiary Care Settings in Calabar, South-South Nigeria. International Journal of Family Medicine2014.
21. Orji E.O, Fatusi A. MNOe. Impact of Training on the Use of Partograph on Maternal and Perinatal Outcome in Peripheral Health Centres, J Turkish-German Gynecol Assoc, 2007; 8(2):148-52

PRE-ECLAMPSIA RISK FACTORS AMONG PREGNANT WOMEN ATTENDING IN FOUR PUBLIC HEALTH FACILITIES OF ADDIS ABABA CITY

Administration, Central Ethiopia: Case Control Study
Eyob Mohammed[1], MPH, Gebi Agero[2] , MPH and Elias Ali[3], MD, MPH

[1and 2] College of Health sciences, Arsi University, Asella, Ethiopia
[3] Jimma Institute of Health Sciences, Jimma, Ethiopia

ABSTRACT

BACKGROUND: Preeclampsia represents a major cause of morbidity and mortality in mother, fetus and infant in many parts of the world particularly developing countries including Ethiopia. It has been increasing and linked to multiple factors, and making prevention of the disease a continuous challenge.

OBJECTIVE: To assess risk factors of preeclampsia among pregnant women visiting ante natal or delivery care in four public health facilities of Addis Ababa City administrative, Ethiopia.

METHOD: This is a case control study of 261 (87 Cases and 174 Control) pregnant women attending antepartum or intrapartum. Bivariate analysis was run to assess crude association between predictor and outcome variable. Multiple logistic regression analysis was used to see the effect of independent variables on the outcome variable for those p values < 0.2 in bivariate analysis.

RESULTS: The significantly associated risk factors with preeclampsia were BMI >30 [AOR 5.2 95% CI 2.1~12.6], age 18—23 years, [AOR .3, 95% CI .128 –.71)], low level of occupation/daily worker/, [AOR 0.3, 95% CI .128 –.71)], not know or heard preeclampsia [AOR 6.49 95% CI 3.02~13.9], and primigravidity [AOR 3.29, 95% CI 1.143 –7.54)]. Whereas women who were gravid more than four [AOR 3.85, 95% CI 1.46 –10.1], previous history of preeclampsia [AOR 9.74 95% CI 2.38~39.8] and family history of hypertension [AOR 2.92, 95% CI 1.194 –7.1] after the effects of other significant risk factors were controlled in multivariate logistic analysis.

CONCLUSIONS: This study found evidence that socioeconomic, medical and obstetric variables have a significant influence on the odds of in pregnant woman. Effective interventions targeting risk factors of preeclampsia and routinely educate and create awareness by the pregnant woman towards risk factors of preeclampsia during antenatal care visit.

KEY WORDS: Preeclampsia, Risk Factor, knowledge, Addis Ababa, Ethiopia.

(Ethiopian Journal of Reproductive Health 2017;9:45-59)

INTRODUCTION

Maternal mortality is unacceptably high; with about 830 women die from pregnancy or childbirth-related complications around the world every day[1]. The complications that account for 80% of all maternal deaths are: severe bleeding (mostly bleeding after childbirth), infections (usually after childbirth), high blood pressure during pregnancy (preeclampsia and eclampsia), and unsafe abortion[2]. Ethiopia is one of the countries in sub-Saharan Africa with markedly high maternal mortality ratio[3]. The limited information indicates that the proportion of maternal deaths after unsafe abortion is decreasing while deaths after /eclampsia are increasing[4, 5].

The case fatality rates of /eclampsia and ruptured uterus/obstructed labor are increasing. There were 15 deaths due to eclampsia/accounting for 35.7% of the maternal deaths at Tekur Anbas Hospital and Gandi Memorial Hospital[6]. In the same two hospitals, in 1981-1983, there were 9 deaths due to eclampsia which account for 6.5% of the total maternal death[7].

The most significant risk factors for are previous history of preeclampsia, multiple gestation, history of chronic high blood pressure, diabetes, kidney disease or organ transplant, first pregnancy, obesity particularly with body mass index (BMI > 30), over 40 or under 18 years of age family history of preeclampsia[8]. In low- and middle-income settings, /eclampsia is significantly associated with maternal death, perinatal death, preterm birth and low birth weight[9,10]. Most studies indicate common risk factors are nulliparity[8,11,12,13,14], advanced maternal age[15], multiple pregnancies[16,17], gestational diabetes[18,19] and pre-gestational diabetes. Women with a history of diabetes have an up to four-fold increased risk of development of compared to the general population[20,21]. Chronic hypertension also one of the main determinants of [22,23]. Relationship between the history of preeclampsia and recurrence risk of has been reported by many researches[24,25,26].

Preeclampsia has remained a significant public health threat in both developed and developing countries contributing to maternal and perinatal morbidity and mortality globally. The impact of the disease is felt more severely in developing countries like Ethiopia. The problem is confounded by the continued mystery of the etiology and the unpredictable nature of the disease.

METHODS AND MATERIALS

Facility based case control study was used to assess the risk factors associated with preeclampsia at four public hospitals in Addis Ababa, Ethiopia, from March to April, 2016. Four public hospitals were chosen at random from eight public hospitals in Addis Ababa. The included hospital was Gandie Memorial Hospital, Turenensh Baging Hospital, Yakatiet 12 Hospital, Zawditu Memorial hospital.

The selected cases and controls recruited for the study had gestational age of 20 weeks or greater. Pregnant women with serious medical and obstetric conditions excluded from the study.

The cases were pregnant women diagnosed to have preeclampsia during their antenatal care (ANC), delivery or /and postnatal care within 48 hours. Consecutive cases were included in the study as the diagnosis of preeclampsia was made until the required sample size was obtained. For each case, two controls were

selected by using proportional allocate the sample to health facilities as per their client size (Fig 1).

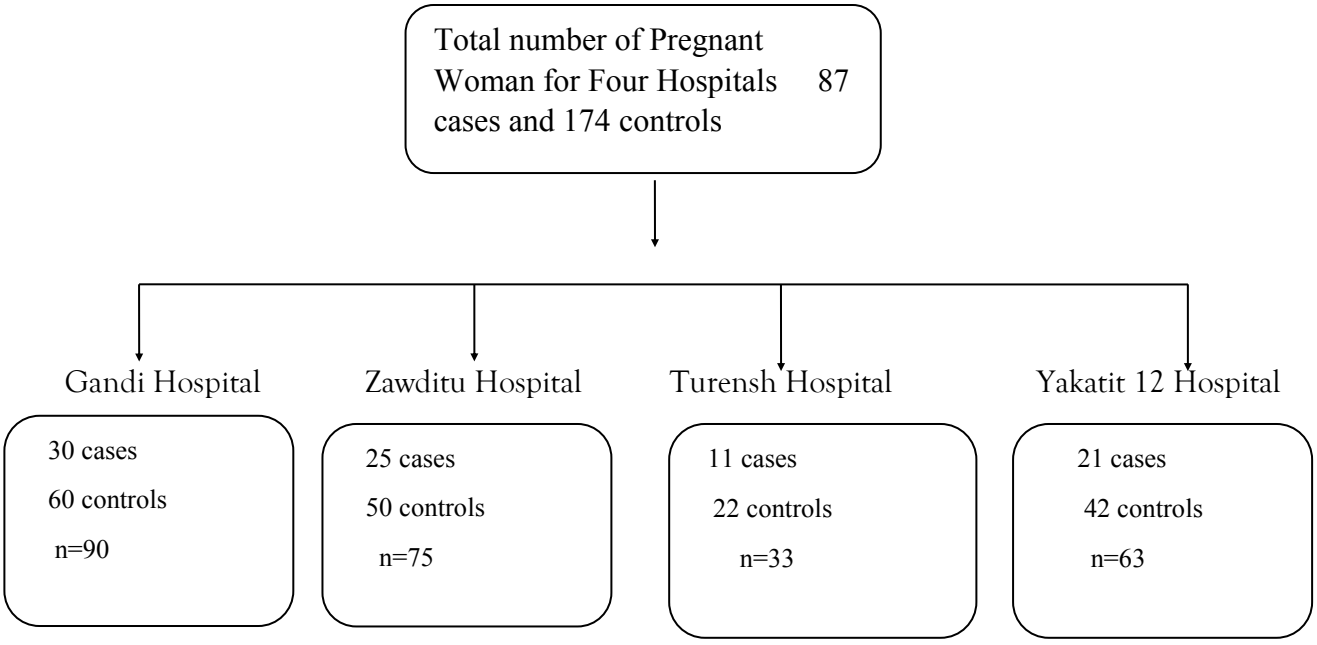

Figure1: The diagrammatic presentation shows how sample population was found selected each hospital

To determine the sample size, the following assumptions was made calculator for two populations by taking 80% power of the test, 95% confidence level and a control to case ratio of 2:1 and odds ratio of 2.2 taken from the findings of literatures using the family history of hypertension as a risk for preeclampsia[43]. Based on the above assumption, the total sample size was required for case and control including 10% for no response was calculated to be 87 and 174 respectively.

Preeclampsia women were identified by blood pressure of 140/90 mmHg or higher at least twice, taken four hours apart after 20 weeks of pregnancy, as well as their urine lab result with protein +2 and above.

The controls were pregnant woman without preeclampsia who had antenatal care or who gave birth in the labour ward within two days of identifying the case. Knowledge was assed based on five questions; those who have answered 60% of the score were considered to have 'adequate knowledge".

Preeclampsia was the dependent variable. The socioeconomic and demographic characteristics were age, religion, occupation, family size, literacy and income status. The number of pregnancy, history of preeclampsia, number of ANC visit, types of pregnancy, family history of preeclampsia, family history of hypertension, family history of diabetes, history of hypertension and history of diabetes, knowledge of risk factors of preeclampsia, and obesity as independent variables.

A well-structured questionnaire was prepared in English version based on previously done similar studies and literature then translated to Amharic version by

expert. The Amharic version was back translated to English to maintain conceptual consistency and pre-tested on other sample population (on 14 pregnant women). Eight Midwife Nurses were recruited to collect data. Two supervisors were supervising the data collection. Data was collected by face to face interview technique using structured questionnaire and medical records were reviewed for some clinical and laboratory results including proteinuria and blood glucose level.

The data was compiled, cleaned, coded, entered in to Epi info 3.5.1 and analyzed using SPSS 21 computer software version. After exploration, univariate, bivariate and multiple logistic regression analysis were performed in a step wise fashion. Using cross tabulation and unadjusted binary logistic regression technique was done to see the crude association between the dependent and independent variable and the strength of association using odds ratio and Chi Square test. P value < 0.05 used as a cutoff point to test statistically significance. Variables with P value < 0.2 were entered in to multivariate analysis using multiple logistic regression technique to see the effect of independent variables on the outcome variable by controlling effect of others/confounders.

Ethical clearance and approval for the study was obtained from Research Ethical Review Committee/ RERC/ of College of Health Science of Arsi University. An official letter of cooperation was given to Addis Ababa city administrative health bureau. Selected public institutions were asked with an official letter to get permission. Data collectors were trained how to handle confidentiality and privacy using consent form attached to each questionnaire. The purpose of the study was explained for study participants and informed consent was obtained from respondents. Pregnant women who were not willing to involve the study and those who want to stop interview at any time were allowed to do so. Personal identifiers were not being registered on the questionnaire to keep confidentiality.

RESULT

Two hundred sixty-one women (87, 33.3% cases and 174, 66.7% controls) consented to participate. Their mean (±1 SD) age of cases and control was similar, 27.0 (±1 SD 4.84 years). Most of respondents were married (n=238, 91.2%), Orthodox Christianity (n=185, 70.9%), and house wives (n=109, 41.7 %). The most common educational level of participant's (n=232, 88.8%) and their partner's (n=193, 73.9 %) was primary level (Table 1).

Table 1: Socio-demographic Characteristics of Pregnant women attending Antenatal follow up or delivery care in selected Public Health facility Addis Ababa city administrative, Ethiopia, 2016

Variables	Status of Participant				Total	
	Cases N=87	%	Controls N=174	%	N=261	%
Age						
18-----23	14	16.1	50	28.7	64	24.5
24-----29	46	52.9	73	41.9	119	45.6
30-----35	18	20.7	44	25.3	62	23.8
>35	9	10.3	7	4.1	16	6.1
Marital Status						
Single	5	5.7	10	5.7	15	5.7
Married	81	93.1	161	92.5	242	92.7
Divorced	1	1.1	3	1.7	4	1.5
Religion						
Orthodox	67	77	118	67.8	185	70.9
Muslim	12	13.7	34	19.5	46	17.6
Protestant	7	8.0	22	12.6	29	11.1
Catholic	1	1.1	0	0	1	0.38
Educational status of pregnant woman						
Primary and non	79	90.8	153	87.9	232	88.9
Secondary & above	8	9.2	21	12.1	30	11.1
Educational level of partners						
Primary and non						
Secondary	70	80.4	123	70.7	193	73.9
Above Secondary	13	14.9	42	24.1	55	21.1
	4	4.6	9	5.2	13	4.9
Occupation of pregnant woman						
Civil servant & NGO	10	11.4	43	24.7	53	20.3
Daily Worker	14	16.1	11	6.3	25	9.6
Merchant	7	8	23	13.2	30	11.5
Private worker	9	10.3	21	12.1	30	11.5
House wife	44	50.6	65	37.3	109	41.7
Other	3	3.4	11	6.3	14	5.3
Income Pregnant woman						
No Income	45	51.7	80	45.9	125	47.9
Low/1000~2000/	34	39.1	81	46.6	115	44.1
Middle/2001-3000/	5	5.7	9	5.2	14	5.3
High/>3001/	3	3.4	4	2.3	7	2.7
Income of partners						
No Income	19	21.8	31	17.8	50	19.2
Low/1000~2000/	36	41.3	57	32.8	93	35.6
Middle2001~3000/	20	23	46	26.4	66	25.3
High/>3001/	12	13.8	40	23	52	20
Family Size						
1~2 Family Member	37	42.5	62	35.6	99	37.9
3~4Family Member	35	40.2	93	53.4	128	49.0
Family Member 4+	15	17.2	19	10.9	34	13

Percipients' knowledge level of and risk factor was assessed by given question. About 149 (57.7%) respondents were adequate knowledge of and risk factor. Control groups 116 (66.6%) were better known or heard of preeclampsia the cause, sign and symptom than case groups 33 (37.9%). Health worker the main source of information among the respondents which accounted for 80 (53.6%) followed by Television which constituted 16(10.7%) of the adequate knowledge respondents (Table 2).

Table 2. Knowledge and source of information of Preeclampsia Pregnant women attending Antenatal follow up or delivery care in Four Public Health facility Addis Ababa city administrative, Ethiopia,2016

Variables	Status of Participant				Total	%
	Cases	%	Controls	%		
Knowledge of Preeclampsia						
Adequate Knowledge	33	37.9	116	66.7	149	57.1
Inadequate Knowledge	54	62	58	33.3	112	42.9
Source of Information						
Health Worker						
Yes	19	58	61	52.6	80	53.7
No	14	42	55	47.4	69	46.3
Radio						
Yes	5	15.2	6	5.2	11	7.4
No	28	84.8	110	94.8	138	92.6
Television						
Yes	3	9.1	13	11.2	16	10.7
No	30	90.9	103	88.8	133	89.3
Magazine						
Yes	1	3.1	2	1.7	3	2
No	32	96.9	114	98.3	146	98
Another source						
Yes	3	9.1	12	10.3	15	10.1
No	30	90.9	103	88.7	134	89.9

The risk factors in women with pre-eclampsia were evaluated. The association between socio-demographic, medical and obstetrical, family history of the women, and preeclampsia were assessed. In bivariate analyses the significant determinants identified for were BMI (OR = 4.8), age (OR = 0.4), occupation (OR =5.5), and knowledge of preeclampsia (OR = 3). Unlike other previous studies, factors such as education, marital status, and monthly income, family size of women did not show any significant correlation with the incidence of preeclampsia in this study (Table 3).

Table 3. Socio-demographic Factors in woman with and woman with Normal Pregnancy women attending Antenatal follow up or delivery care in four Public Health facility Addis Ababa city administrative, Ethiopia,2016=

Characteristic	Case	%	Control	%	Odds ratio	95 % CI Lower Upper	P-Value
Obesity							.000*
18–24.9	13	14.9	74	42.5	1		
25–30	32	36.7	51	29.3	3.572	1.710–7.462	
>30	42	48.3	49	28.1	4.879	2.377—10.016	
Marital Status							.939
Single	5	5.7	10	5.7	1.5	.123—18.363	
Married	81	93.1	161	92.5	1		
Divorced	1	1.1	3	1.7			
Age							.027*
18–23	14	16.1	50	28.7	.444	.221–.893	
24–29	46	52.9	73	41.9	1		
30–35	18	20.7	44	25.3	.649	.335—1.257	
>35	9	10.3	7	4.1	2.040	.711—5.856	
Woman occupational							.011*
Civil servant & NGO	10	11.4	43	24.7	1		
Daily Worker	14	16.1	11	6.3	5.5	1.920—15.6	
Merchant	7	8.0	23	13.2	1.31	.440—3.218	
Privet worker	9	10.3	21	12.1	1.84	.651–5.218	
House wife	44	50.6	65	37.4	2.9	1.325–6.396	
Woman Educational							.491
Primary and non	79	90.8	153	87.9	2.121	.233—19.299	
Secondary & above	8	9.2	21	12.1	1		
Income of woman							.694
No Income	45	51.7	80	45.9	.750	.161—3.501	
Low/1000-2000/	34	39.1	81	46.6	.560	.119—2.636	
Middle/2001-3000/	5	5.7	9	5.2	.741	.116—4.728	
High/>3001/	3	3.4	4	2.3	1		
Family Size							.104
1–2 family Member	37	42.5	62	35.6	1.586	.903–2.784	
3–4Family Member	35	40.2	93	53.4	1		
Family Member 4+	15	17.3	19	10.9	2.098	.961–4.579	
Knowledge of Preeclampsia							.000*
Yes							
No	33	37.9	116	66.7	1		
	54	62.1	58	33.3	3.27	1.916–5.5	

The medical and obstetric factors in women with preeclampsia and women with normal pregnancy are shown in Table 4. Woman who had history of, who had a family history of hypertension, were primegravid and who were gravid four or more were more likely to develop. Unlike other previous studies, factors such as family history of preeclampsia, family history of diabetes militias, types of pregnancy, number of ANC visit, history of chronic hypertension, history diabetes militias of women did not show any significant correlation with the incidence of preeclampsia in this study (Table 4).

Table 4 Medical and Obstetric Factors in women with and woman with Normal of Pregnant women attending Antenatal follow up or delivery care in four Public Health facility Addis Ababa city administrative, Ethiopia,2016

Characteristic	Case	%	Control	%	C.O. R	95 % CI Lower	Upper	P-Value
Number of Pregnancy /Parity/								.027*
Prim gravid	39	44.8	64	36.8	1.808	1.018–3.210		
Gravida2–4	30	34.4	89	51.1	1			
Gravid 4 +	18	20.6	21	12.1	2.543	1.197–5.401		
Types of Pregnancy								.841
Singleton	83	95.4	165	94.8	1.132	.339–3.784		
Twins/above	4	4.6	9	5.1	1			
Number of ANC visit								.436
1–3ANC visit	5	5.7	8	4.6	.804	.181–3.570		
4–6ANC visit	43	49.4	104	59.8	.532	.186–1.519		
6–8ANC visit	32	36.7	53	30.4	.776	.263–2.288		
ANC visit 8+	7	8.0	9	5.1	1			
History of Preeclampsia								.021*
Yes	14	16.1	10	5.7	2.72	1.097–6.745		
No	38	43.7	96	55.2	1			
Family History of Preeclampsia								.128
Yes	11	12.6	12	6.9	1.954	.825–4.628		
No	76	87.4	162	93.1	1			
Family History of Hypertension								.047*
Yes	20	22.9	23	13.2	1.96	1.008–3.810		
No	67	77.1	151	86.8	1			
Family History of Diabetes militias								.380
Yes								
No	4	4.6	13	7.5	.597	.189–1.888		
	83	95.4	161	92.5	1			
History of Chronic Hypertension								0.93
Yes								
No	5	5.7	3	1.7	3.476	.811–14.897		
	82	94.3	171	98.3	1			
History of Diabetes militias								.533
Yes								
No	5	5.7	7	4.1	1.455	.448–4.723		
	82	94.3	167	95.9	1			

Variables studied in bivariate analysis of risk of preeclampsia in this study (see Tables 3 and 4). Some showed significant difference with *P*-values of <0.05, while in order to avoid missing variables that were significant in other similar studies, a *P*-value ≤0.2 was used as a cutoff point for multivariable analysis. Ten variables that were significant at *P*≤0.2 were entered for backward-stepwise binary logistic regression. Hosmer–Lemeshow goodness-of-fit statistics methods were checked for fullness of the model. The final model showed 0.886 goodness, very far from 0.05 and clearly indicating the outcome variable was fully explained by the independent variables entered in the full model. The same findings were also obtained with forward-stepwise regression. Based on these seven variables were significantly associated with in multivariate logistic regression analysis after adjustment for confounding variables. Women who had obesity were five times as likely to develop as women with normal BMI. Women who had low level of occupation/daily worker/ were nine times more likely to develop preeclampsia compared to women who had employed government/NGO at .004 level of significant.

Majority of the cases and controls belonged to the 24-29-year age group (41.9% and 55.1%, respectively). the younger age group of pregnant women were 0.3 times more likely to develop than women who were woman age 24–29, whereas women who were >35 age no significant compare to women who were age 24–29 in this study. The patients who had not known or heard had six times of developing /eclampsia compared to those who know or heard preeclampsia.

Women who had history of were 9.7 times more likely to develop compared to women who did not have history preeclampsia. Similarly, women who had a family history of hypertension were three times more likely to develop. As women who did not primigravidae were three times more likely to develop than women who were gravid 2–4. Whereas women who were gravid more than four were four times more likely to develop than women who were gravida 2–4 (Table 5).

Table 5. Final Model of Multivariable Analysis for Risk Factors of in women with and woman with Normal of Pregnant women attending Antenatal follow up or delivery care in four Public Health facility Addis Ababa city administrative, Ethiopia,2016

Characteristic	Case	%	Control	%	C.O. R	A.O. R	P-Value
Obesity							.001
18~24.9	13	14.9	74	42.5	1	1	
25~30	32	36.8	51	29.3	(.710-7.46)	4.1(1.6-10.2)	
>30	42	48.2	49	28.2	(10.0-2.54)	5.2(2.1-12.6)	
Age							.010
18~23	14	16.1	50	28.7	.44(.221-.893)	.3(.128-.71)	
24~29	46	52.9	73	41.9	1	1	
30~35	18	20.7	44	25.3	.649(.335-1.3)	.4(.17-.87)	
>35	9	10.3	7	4.1	2.04(.711-5.9)	1.5(.368-6.0)	
Woman occupational							.004
Civil servant & NGO	10	5.7	43	24.7	1	1	
Daily Worker	14	16.1	11	6.3	5.5(1.9-15.6)	9.2(2.6-31.7)	
Merchant	7	8	23	13.2	1.3(.44-3.2)	1.86(.518-6.69)	
Privet worker	9	10.3	21	12.1	1.84(.651-5.2)	1.91(.55-6.609)	
House wife	44	50.6	65	37.4	2.9(1.32-6.4)	4.3(1.67-11.05)	
Other	3	3.4	11	6.3	.12(.275-5.0)	1.15(.233-5.68)	
Knowledge of Preeclampsia							.000
Yes	33	37.9	116	66.7	1	1	
No	54	62.1	58	33.3	3.271(1.92-5.5)	6.49(3.02-13.9)	
Number of Pregnancy/ Parity/							.005
Prim gravid	39	44.8	64	36.9	1.81(1.01-3.2)	3.29(1.42-7.54)	
Gravida2~4	30	34.5	89	51.1	1	1	
Gravid 4 +	18	9.2	21	12.1	2.54(1.19-5.4)	3.85(1.46-10.1)	
History of Preeclampsia							
Yes	14	16.1	10	11.5	2.72(1.1-6.74)	9.74(2.38-39.8)	
No	38	43.7	96	55.2	1		
Family History of Hypertension							
Yes	20	22.9	23	13.2	1.96(1.01-3.8)	2.92(1.194-7.2)	
No	67	77.0	151	86.9	1		

N.B -C.O. R~Crud Odd Ratio A.O.R~ Adjacent Odd Ratio

DISCUSSION

Our work demonstrates that risk factors for developing in Ethiopia woman attending public hospitals for prenatal care delivery are similar with studied in other populations. In multivariate analysis maternal age, BMI, occupation level, knowledge of, gravidity, history of, family history of hypertension was significant associated risk of developing of in the current pregnancy. This is consistent with similar findings in other studies. The association of family history of hypertension, family history of diabetes mellitus and family history of were remained significantly and independently associated with[15,27]. Many women with, particularly, at the community level are missed due to the lack of antenatal care. These women are more likely to develop serious complications[28].

Maternal obesity also well known risk factor for the development of preeclampsia [29, 30]. Thus, the risk of severe and mild preeclampsia[31] and preeclampsia occurring in early and late gestation[32] are greater in obese and overweight women. The relationship that obesity increases the risk of preeclampsia has been reported for several populations around the world [30,32,33,34,35,36,37].

Obesity is a major epidemic in developed countries that is now extending to developing countries[10,30, 31,32,33,34]. It was found to be BMI > 30 kg/m^2a risk factor for preeclampsia in this study [AOR5.2 95% CI 2.1~12.6]. The finding that obese women are at a higher risk of had been shown in both high and low resource setting. [10, 32]. It is not known why obesity is a risk factor for preeclampsia[29], but these conditions might be related through common features related to oxidative stress, inflammation and altered vascular function. Recently, extensive vascular infiltration of neutrophils and vascular inflammation has been reported in both preeclamptic women and obese women. Therefore, if the vasculature of obese women is inflamed, they could be at increased risk of developing when they become pregnant and are exposed to the additional burdens of pregnancy[29,30]. Based on the finding women with the lowest BMI are relatively protected against preeclampsia[10], which is also confirmed in this study.

Current strategies for risk assessment are based on the obstetric and medical history and clinical examination. Pregnant women are assessed at their first antenatal clinic (prior to 12 weeks if possible) for risk factors for including age, nulliparity, prior history of, high BMI, history of diabetes mellitus and hypertension[38,39].

The association of maternal age and development of was noted in studies conducted at low and high-level setting[13,15,14,39]. The current study showed that woman aged between 18 - 23 years [AOR .3, 95% CI .128 – .71)] and 30 - 35 years [AOR .4, 95% CI (.17~.87)] were found to have 70% and 60% lesser chance of developing as compared to those women aged between 24 - 29 aged respectively. However, maternal age is a factor for the development of increased with pregnancies in older ages (age 35 and above)[14,15]. But, this study did not show this aged thirty-five and above years to demonstrate any significant effect of development.

This study used working status as proxy our finding shows an increased risk of developing in those women

in low status compared to civil servant and NGO. Daily worker women had about nine times [AOR 9.2 95% CI 2.6~31.7] and house wife woman four times [AOR 4.3 95% CI 1.67~11.05] developing preeclampsia. The association of low level working status and is unclear but could be due to low socioeconomic status lead to poor nutrition and stressful life conditions which may lead to over reactivation of the sympathetic nervous system[40].

Nulliparity has been shown to almost triple the risk of [11]. Many studies have reported nulliparity as a risk factor for severe[11,12,13,39]. Nulliparity compared to prior parity was associated with three-fold increased risk of [AOR 3.29, 95% CI 1.143 –7.54)] similar to previous report[11,12,13,39].

Our finding of a four-fold [AOR 3.85, 95% CI 1.146 –10.2)] increased risk in woman who was gravida four or greater compared to those who were gravida 2- 3. This is similar to other report .[45]

Ethiopian woman with a prior history and recurrence had 10 times risk of developing severe pre - eclampsia in this study [AOR 9.74 95% CI 2.38~39.8]. Confirms similar reports to other studies have made similar observation.[24 25 26].

Women who had family history of hypertension had about three times [AOR 2.92, 95% CI 1.194 –7.1)] greater odds of developing preeclampsia compared those who have not after controlling for confounders. This was similar to what was found by other researchers in low and high-resources settings [35,41,46]. It is possible that a family history of hypertension is associated with high risk of through genetic, environmental or behavioral mechanisms.[15,27].

Woman without prior knowledge of had a 6.5 times higher risk of developing a disease [AOR 6.49 95% CI 3.02~13.9]. The reason for this could be because of lack of awareness of antenatal care or poor health seeking behavior leading to delay to come to hospital. No similar studies were found to support or contradict the finding of the study.

Our study did not find an association of number of factors by others to compare an increased risk of including: history of chronic hypertension, family history of preeclampsia, family history of diabetes militias, multiple pregnancy, number of ANC visit, history diabetes mellitus. It could be that we were underpowered to be able to observe an association in our population or that these truly do not present an elevated risk [35,41,40,42, 43,46].

CONCLUSION

Pregnant women in low and middle-income countries (LMIC) are amongst the most vulnerable populations in the world. /eclampsia is significantly associated with maternal death, perinatal death, preterm birth and low birth weight. At the individual level, a number of socio demographic and medical and obstetric variables are significant risk factors for eclampsia, with obesity, occupational status, knowledge of, history of, number of pregnancy/parity/, and family history of hypertension, posing the highest risks of the outcome, and with antenatal care visits. Acting as a protective factor due to increasing surveillance in highest risk patient, use of ASA, calcium as prophylaxis in highest risk patient and knowledge of the risk factors may allow for earlier recognition of treatment.

Limitation: This study was conducted in four general

public hospitals. It was not including teaching and referral hospitals and also private hospital and higher clinics found in the city. The women seen at those hospitals may not be representative of the ones seen in the hospitals or higher clinics. Women with eclampsia and HELLP syndrome /seriously ill/ were excluded and this could have affected the representativeness of the cases.

ACKNOWLEDGEMENT

We greatly indebted to thank Collage of Health Science, University of Arsi for its support for giving an official letter to contact different concerned organizations and officials to conduct the study. As well, special thanks go to pregnant and labor mothers who gave genuine information of, themselves and families to make the study fruitful.

We greatly indebted to thank Collage of Health Science, University of Arsi for its support for giving an official letter to contact different concerned organizations and officials to conduct the study. As well, special thanks go to pregnant and labor mothers who gave genuine information of, themselves and families to make the study fruitful.

Corresponding Author:

Eyob Mohammed

[1]College of Health sciences, Aarsi University, Asella, Ethiopia

Email: eyobeyob0125@gmail.com

REFERENCES

1. World Health Organization, Maternal Mortality. 2015.
2. Cousens S, B.H., etl., National, regional, and worldwide estimates of stillbirth rates in 2009 with trends since 1995. . Lancet, 2011, .
3. UNFPA, Trends inMaternal Healthin Ethiopia, 2012: Addis Ababa.
4. CSA, Ethiopia Demographic and Health Survey 2011,2012, Central Statistical Agency: Addis Ababa, Ethiopia and Calverton, Maryland, USA:.
5. Abdella, A., Maternal Mortality Trend in Ethiopia. Ethiop Journal Health Develpement . 2015.
6. A., A. Maternal mortality in two teaching hospitals in Addis Ababa, Ethiopia, 2007-2008. 2008.
7. BE, K., Unsafe motherhood: A monumental challenge-A study of maternal mortality in Addis Ababa. Netherland: Lithoprint Ltd (TU),1988.
8. Paola Aghajanian, S.W.A., etl., Current Diagnosis & Treatment Obstetrics & Gynecology, Tenth Edition, 2007: USA.
9. Kayode O. Osungbade1, a.O.K.I., Public Health Perspectives of Preeclampsia in Developing Countries: Implication for Health System Strengthening. J Pregnancy, 2011.
10. Sutapa Agrawal, G.K.W., Prevalence and risk factors for in Indian women. 2006.
11. Salafia C, S.K., Cigarette smoking and pregnancy - II: Vascular effects. Placenta , . 1999: p. 20:273-279.
12. Walker, J. J. Severe pre - eclampsia and eclampsia Baillieres Best Pract Res. Clin Obstet Gynaecol2000; 14:57 -71.
13. Ekine Atombosoba Adokiye, J.I., Factors influencing the prevalence of Preeclampsia-eclampsia in booked and unbooked patients: . World Journal of Medicine and Medical Science, 2015. 3(2330 - 1341 (Online)).
14. Reeta LamminpääEmail author, K.V.-J.e., Preeclampsia complicated by advanced maternal age: a registry-based study on primiparous women in Finland 1997–2008. BioMed Central Ltd, 2012.
15. Gizachew Assefa Tessema1*, A.T.e., Preeclampsia and associated factors among pregnant women attending antenatal care in Dessie referral hospital, Northeast Ethiopia: a hospital-based study. Pregnancy and Childbirth, 2015.
16. Gilles Guerrier, B.O.e., Factors associated with severe preeclampsia and eclampsia in Jahun, Nigeria. International Journal of Women's Health, 2013.
17. Preeclampsia During the Twin Pregnancy.
18. Chris Iliades Preeclampsia and Gestational Diabetes. 2009.
19. Ajazi R, S.E., Rexhepi P, Alikaj A, Evaluation of diabetes as a risk factor for .
20. Middleton P, C.C., Simmonds L, Muller P, Different intensities of glycaemic control for pregnant women with pre-existing diabetes., 2010.

21. S Ganesh Kumar, B.U., K Nagaraj2, S Jayaram3, Determinants of : A case-control study in a district hospital in South India. 2010.
22. Maryam Kashanian, H.R.B.e.l., Risk Factors for : A Study in Tehran, Iran. PMD, 2011.
23. Paul Kiondo, G.W.-M.e.l., Risk factors for in Mulago Hospital, Kampala,Uganda. 2009.
24. Barton JR, S.B., Prediction and prevention of recurrent preeclampsia. 2012, Royal college.
25. Sonia Hernández-Díaz, S.T., Risk of in first and subsequent pregnancies. BMJ, 2009.
26. Ramesh K, S.G.a.V.R., socio-Demographic and Other Risk Factors of Pre Eclampsia at a Tertiary Care Hospital, Karnataka: Case Control Study. 2013.
27. Mekbeb T, K.K., /eclampsia at Yekatit 12 Hospital, Addis Ababa, Ethiopia (1987-1989). PubMed
28. Johnson SR, Kolberg BH, Varner MW, Railsback LD. Maternal obesity and pregnancy. Surg Gynecol Obstet. 1987; 164: 431-437.
29. Walsh SW1. Obesity: a risk factor for preeclampsia.
30. Bodnar LM, Ness RB, Markovic N, Roberts JM. The risk of preeclampsia rises with increasing prepregnancy body mass index. Annals of Epidemiology. 2005;15:475–82
31. Mahomed K, Williams MA, Woelk GB, et al. Risk Factors For Among Zimbabwean Women - Maternal Arm Circumference and Other Anthropometric Measures Of Obesity. Paediatric and Perinatal Epidemiology. 1998; 12:253–262.
32. Hossain P, Kawar B, El Nahas M. Obesity and diabetes in the developing world--a growing challenge, New England Journal of Medicine. 2007; 356:213–5.
33. Hauger MS, Gibbons L, Vik T, Belizan JM. Prepregnancy weight status and the risk of adverse pregnancy outcome. Acta Obstetricia Et Gynecologica Scandinavica. 2008; 87:953–959.
34. Briana DD, Malamitsi-Puchner A. Adipocytokines in Normal and Complicated Pregnancies.Reproductive Sciences. 2009; 16:921–937.
35. Berg AH, Scherer PE. Adipose tissue, inflammation, and cardiovascular disease. Circulation Research.2005;96:939–49
36. Greenberg AS, Obin MS. Obesity and the role of adipose tissue in inflammation and metabolism. American Journal of Clinical Nutrition. 2006; 83:461S–465S.
37. A. Abubakar, A.A.e., Maternal Ethnicity and Severity of in Northern Nigeria. Asian Journal of Medical Sciences, 2009(ISSN: 2040-8773).
38. Alphonsus N Onyiriuka, A.A.O., Perinatal Outcome in Patients With in Benin City, Nigeria. Trop J Obstet Gynaecol, , 2004: p.; 21:148-152].
39. Leeners B, Neumaier-Wagner P, Kuse S, Stiller R & Rath W (2007) Emotional stress and the risk to develop hypertensive diseases in pregnancy. Hypertension in Pregnancy 26, 211–226

KNOWLEDGE, ATTITUDE AND PRACTICE OF EMERGENCY CONTRACEPTIVES AMONG FEMALE UNIVERSITY STUDENTS IN ETHIOPIA: A SYSTEMATIC REVIEW AND META-ANALYSIS

Bilal Tessema Yimer[1], Berhanemeskel Weldegerima Atsbeha[1], Nurahmed Seid Getaw[2]*

[1] Lecturer, Department of Pharmaceutics, School of Pharmacy, College of Medical and Health Sciences, University of Gondar, Gondar, Ethiopia

[2] Lecturer, Department of Pharmaceutical Chemistry, School of Pharmacy, College of Medical and Health Sciences, University of Gondar, Gondar, Ethiopia.

ABSTRACT

BACKGROUND: Unwanted pregnancy followed by unsafe abortion is one of the major worldwide health problems, which has many negative consequences on the health and well-being of women. Emergency contraception is a type of modern contraception that is indicated after unprotected sexual intercourse when regular contraception is not in use. This study summarized the knowledge, attitude and practice of ECs among female university students in Ethiopia.

METHODS: A systematic review and meta-analysis of observational studies were conducted. Original studies were identified using databases of PubMed, Medline, Embase, Cinahl and Web of science. Heterogeneity across studies was checked using Cochrane Q test statistic and I^2 test. The pooled prevalence of the knowledge, attitude and practice of ECs methods were computed using a random effect model.

RESULTS: A total of 321 articles were retrieved through the initial search strategy, producing 15 observational studies from universities of Ethiopia for analysis. Based on the studies included in the meta-analysis, the pooled prevalence of level of knowledge, attitude and magnitude of utilization of ECs were 57.7% (95% CI: 49.8 to 65.3), 42.6% (95% CI: 41.4 to 43.8) and 9.2% 95% CI: 6.6 to 12.6), respectively. On the other hand, significant heterogeneity was observed between studies (Q = 664.9, p = 0.000, I2 = 97.9%).

CONCLUSION: This meta-analysis revealed that the pooled prevalence of level of knowledge, attitude and the magnitude of utilization of ECs were relatively low among female university students in Ethiopia. Hence, behavioral change strategies should be considered by responsible bodies to improve knowledge and bring attitudinal change on use of emergency contraception.

KEYWORDS: Emergency contraceptives, Knowledge, Attitude, Practice, Meta-analysis, Systematic review, Ethiopia.

(Ethiopian Journal of Reproductive Health 2017;9:60-71)

INTRODUCTION

Unwanted pregnancy is an important public health issue in both developed and developing countries because of its negative association with social and health outcomes for both mothers and children as well as the society as a whole[1,2]. Unintended pregnancies in higher education students pose a major public health problem in the developed and developing countries [3-5] including Ethiopia[6] and are associated with far reaching effects such as jeopardizing students' educational progress and future careers[4-7]. In about half of all unwanted pregnancies, conception occurs due to inadequate guidance to use contraception effectively, including the users' inability to address their feelings, poor attitudes towards contraceptives, and lack of motivation[6]. In spite of the availability of contraceptives with affordable costs and Ethiopian government's effort to prevent unwanted pregnancies and abortion among youths, there is a large number youths' with unwanted pregnancies and unsafe abortion[6,8].

Emergency contraceptive (EC) is any method of contraception which is used after intercourse and before the potential time of implantation[9]. It plays a vital role in preventing unintended pregnancy, which in turn helps to reduce unintended child birth and unsafe abortion, which are major problems of maternal health[10]. It is found to be effective and can prevent at least 75% of expected pregnancies if used as soon as possible after unprotected sexual intercourse, especially within 72 hours of unprotected sexual intercourse [10,11]. Various studies have reported the level of knowledge, attitude and practice of EC among university students in Ethiopia [8,9,10-22]. It is important to have summarized evidence on these studies to extract valuable information, which helps concerned bodies to identify existing gaps and propose supplementary strategies to increase the availability, accessibility and utilization of EC in Ethiopia. Therefore, the purpose of this study is to summarize the level of knowledge, attitude and practice of ECs among female university students in Ethiopia.

METHODS

The present research is a systematic review and meta-analysis on the knowledge, attitude and practice of EC among university students of Ethiopia. The researcher systematically searched studies published and unpublished observational studies on the level of knowledge, attitude and practice of EC among female university students in Ethiopia. English language publications in the PubMed, MEDLINE, EMBASE, CINAHL and Web of science databases were identified and cross-checked with reference lists containing combinations of the key words "knowledge", "attitude", "practice", "emergency contraceptive", "university students", and "Ethiopia". In addition, a search was also made for cross-reference lists of identified original articles and reviews of articles. The data search was performed from July 25 to August 30, 2016. Reference list of published studies was evaluated to increase sensitivity and to select more studies. An independent researcher did search evaluation randomly and it was confirmed that no studies were excluded. This meta-analysis is reported in accordance with the MOOSE guidelines[23]. Endnote X7 was used to maintain and manage our library.

A systematic review and meta-analysis were made on cross-sectional studies that were focused on the knowledge, attitude and practice of EC among female university students of Ethiopia. Every accessible article that reported knowledge, attitude and practice of EC among university students of Ethiopia was included in the meta-analysis without restriction based on publication date. Researchers carefully assessed entire text or summary of all searched articles, documents, and reports and the related articles were selected. Studies were excluded from the analysis for any of the following reasons: articles focused on other than ECs, meta-analysis or systematic reviews; articles consisted of comments, editorials, or duplicate publication of the same study; articles in which response rate was less than 80% and articles available only in abstract form. The selection of articles for review was done in three stages: titles alone, abstracts, and then full-text articles.

Concerning quality evaluation, the related studies in terms of titles and contents, a checklist, which is adapted from a previous study, was applied. To evaluate the quality of documents; objective of every research, study method, sample size, sampling method, data collection tool, variables evaluation status, studied target group, and analysis status were examined using 10 questions (one score for each question). According to this checklist, maximum score is 10 and minimum acceptable score is 8 [24]. Finally, articles obtaining minimum score and above were selected and their respective information was extracted and analyzed. Data was extracted in terms of article title, first author, study year, total sample size, research method and place, level of knowledge, attitude and practice of EC. Data was entered in Excel spread-sheet.

Data synthesis for meta-analyses was performed using the random effect model with available data presented in a Forest plot. Prevalence rate of level of knowledge, attitude and practice of ECs in every study was calculated. Finally, heterogeneity index was determined using Q test and I^2 index, which describes the percentage of variation not because of sampling error across studies. An I^2 value above 75% indicates high heterogeneity. Meta-analysis was conducted by using a random-effects model (to account for heterogeneity) conducted using Comprehensive Meta-Analysis V2.exe.Ink (Biostat, Englewood, NJ 07631 USA).

Finally, point estimation of level of knowledge, attitude and practice of ECs with confidence interval of 95% was calculated by using forest plots. In this plot, square size represents weight of every study, which had positive association with the sample size and lines to both sides of it represent confidence interval of 95% of the reported prevalence, and the diamond below the graph shows the pooled average. Sensitivity analysis was also conducted to estimate the effect of each individual study in the pooled prevalence estimation.

RESULTS

A total of 321 citations were retrieved through electronic database screening and ten additional articles were also manually obtained. Of these 331 articles, 255 were excluded after screening by titles and abstracts.

These were duplicated studies, case reports and reviews. Finally, 15 articles that met all of the eligibility criteria were used for the meta-analysis. All of the 15 studies selected for the analysis were cross sectional studies with a total population of 8,157 subjects. The characteristics of each included study are reported in Table 1 and a PRISMA flow chart outlining the details related to the selection process are presented in Figure 1.

Table 1: Description of the studies included in the meta-analysis

ID	First author	Publication year	Study Setting (University)	Sample size	Score quality	Parameter studied and their prevalence on EC		
						Knowledge on EC	Attitude towards EC	Utilization of EC
1	Dejene [13]	2010	Adama	660	8	Ever heard about EC, 46.8%	Positive attitude, 62.9%	Ever Used EC, 4.7%
2	Fatuma [11]	2012	Addis Ababa	368	9	Ever heard of EC, 84.2%	Positive attitude towards EC, 32.3%	Used EC, 7.33%
3	Ejara[18]	2013	Hawasa	776	8	Had knowledge about EC, 72.2%	-	Ever used EC, 5.3%
4	Nasir[9]	2014	Jimma	389	8	Ever heard or knew EC, 41.9%	Willing to use EC at times of need, 29.8%	Used the EC method, 6.8%
5	Jimma[12]	2013	Ambo	350	9	Had ever heard about EC, 62.5 %	Plan to use if needed, 21.2%	Utilized EC, 36.5%
6	Belaynew [19]	2012	Gondar	623	9	Had heard about EC, 67%	Believe that EC can prevent pregnancy, 30.7%	-
7	Marta[16]	2015	D/Markos	599	8	Had good knowledge, 62.5%	Positive attitude towards EC, 53.8%	Ever used EC, 11.4%
8	Wegene[8]	2007	AAU/Unity U	774	8	Have heard about EC, 43.5%	Positive attitude towards, 53%	Ever used EC 4.9%
9	Bisrat[24]	2016	Mizan-Tepi	540	8	Ever heard about EC, 67.8%	Positive attitude towards EC, 46.8%	Utilized EC, 12.6%
10	Berhanu [21]	2011	Haramaya	572	8	Ever heard about EC, 46.6%	Positive attitude towards EC, 36.4%	-
11	Tewodros [23]	2015	Wachamo	424	8	High levels of knowledge about EC, 49.8%	Positive attitudes towards EC, 47.6%	Used EC, 13.9%
12	Zeleke[20]	2009	Bahir dar	400	9	Heard about EC, 83.5%	Positive attitude towards EC, 62.3%	Utilized EC, 22.75%
13	Gelaye (15)	2014	Wolaita	493	8	Ever heard of EC, 44%	-	Used EC, 9.5%
14	Giziyenesh [22]**	2014	Aksum	628	8	Good knowledge about EC, 27.2%	Had positive attitude EC, 12.4%	Ever used EC, 14.7%
15	Etenesh [14]**	2009	Mekelle	561	8	Aware of EC, 44.7 %	Had positive attitude towards EC, 33.9%	Had ever used EC before, 5.7%

*EC- Emergency contraceptive, ** - unpublished thesis studies

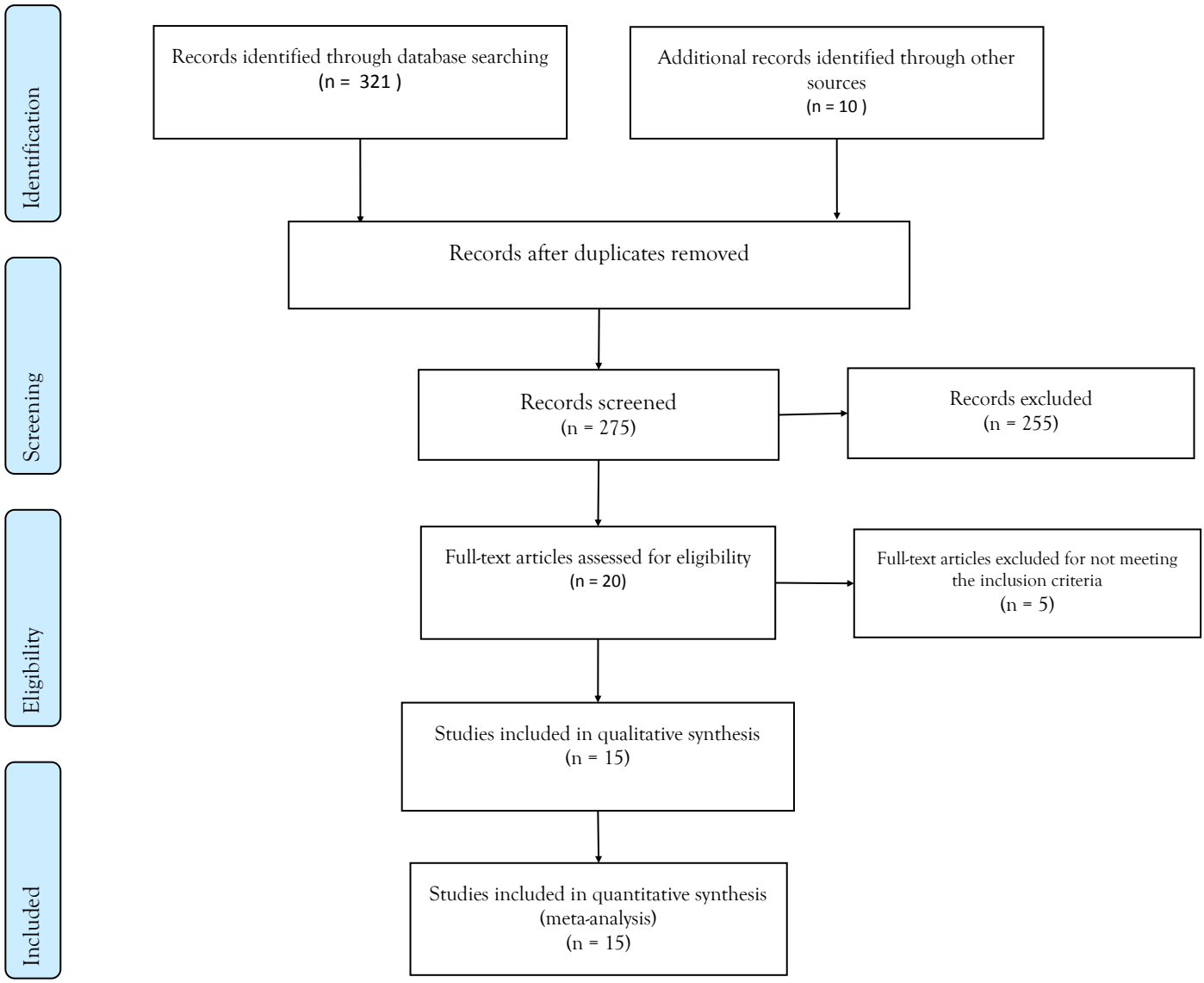

Figure 1: A flowchart describing selection of studies for the systematic review and meta-analysis identification, screening, eligibility and inclusion).

***Articles may have been excluded for more than one reason**

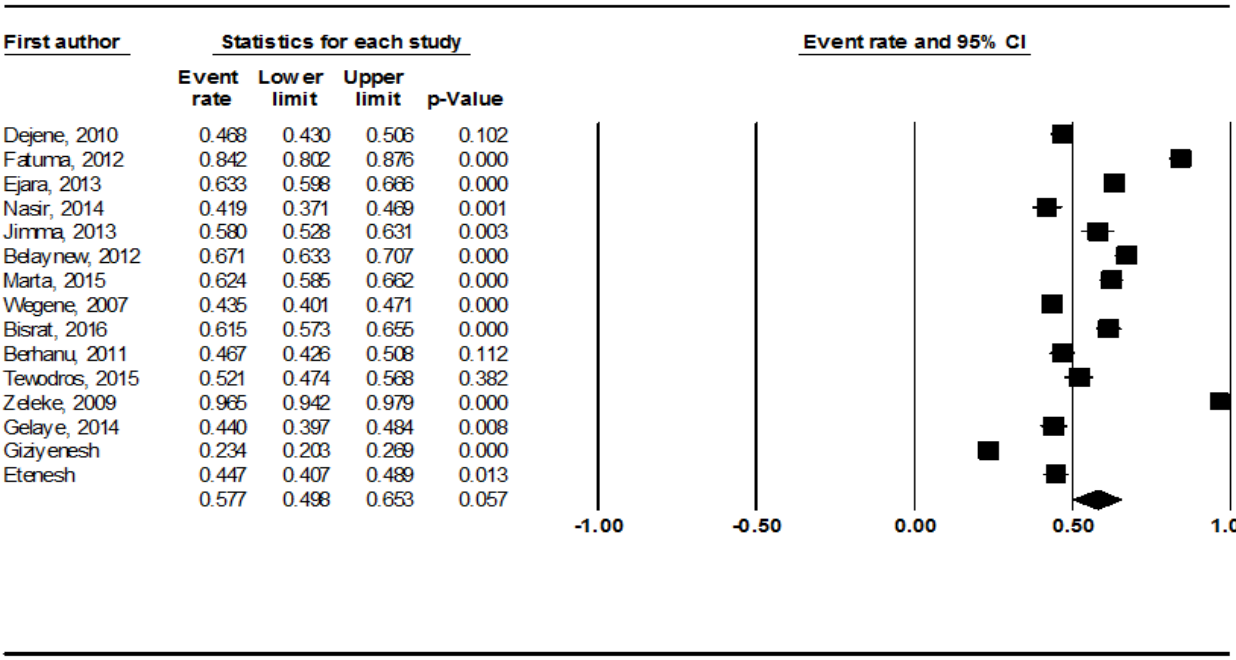

Figure 2: Forest plot of studies related to knowledge regarding emergency contraceptives among university students in Ethiopia. Rectangles indicate point prevalence and size of the rectangles represent the weight given to each study in the analysis; the diamond indicates the combined point prevalence and horizontal lines indicate 95% confidence interval

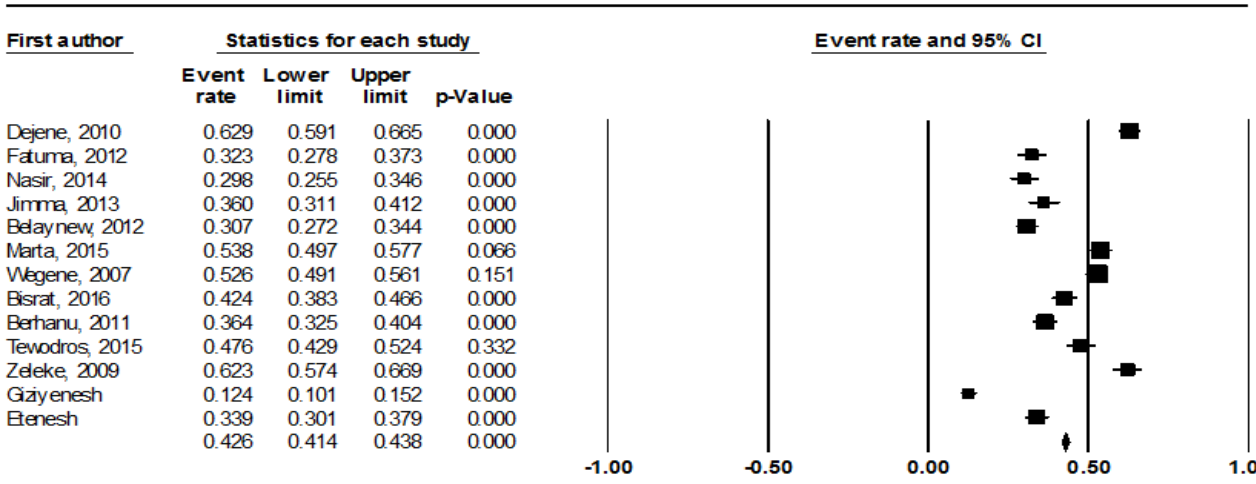

Figure 3: Forest plot of studies related to attitude towards emergency contraceptives among female university students in Ethiopia. Rectangles indicate point prevalence and size of the rectangles represent the weight given to each study in the analysis; the diamond indicates the combined point prevalence and the horizontal lines indicate 95% confidence interval.

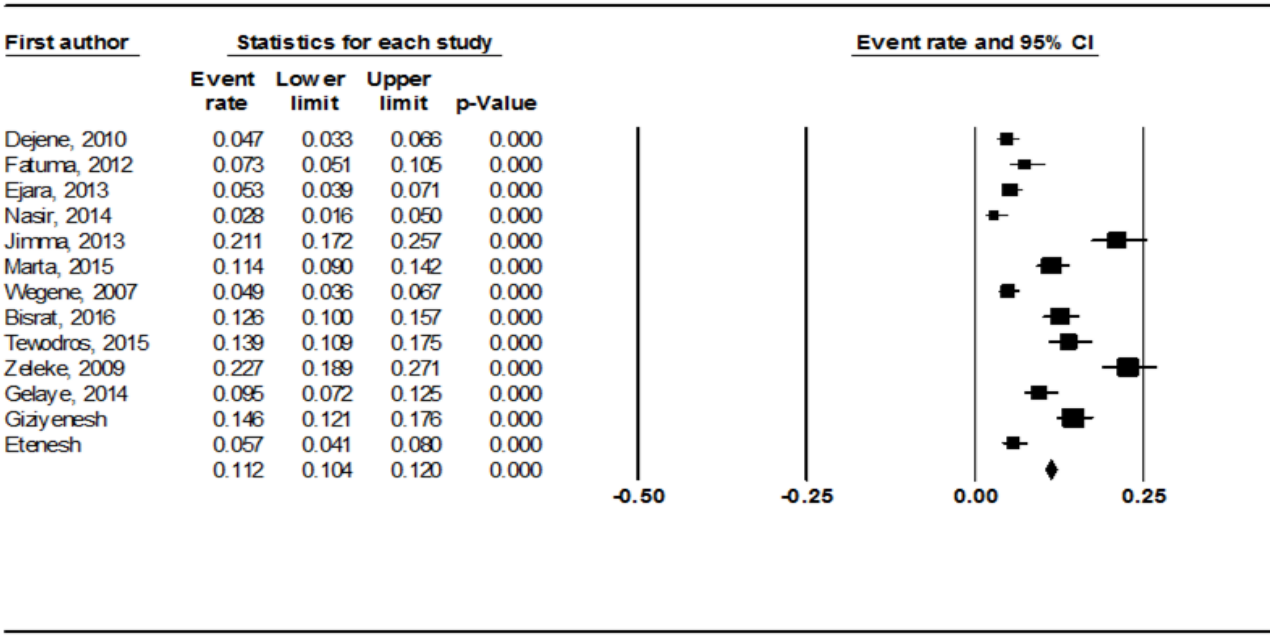

Figure 4: Forest plot of studies related to utilization of emergency contraceptives by female university students in Ethiopia. Rectangles indicate point prevalence and size of the rectangles represent the weight given to each study in the analysis; the diamond indicates the combined point prevalence and the horizontal lines indicate 95% confidence interval.

Knowledge regarding emergency contraceptive shown all of the 15 studies included some form of assessment regarding knowledge about ECs. Overall, the prevalence of level of knowledge about EC was 57.7 % (95% CI: 49.8 to 65.3) see Figure 2. The highest level of knowledge (awareness) regarding ECs was reported from Addis Ababa University in 2012 with 84.2% (95% CI: 80.2 to 87.6) and the lowest level reported from Aksum University in 2014 with 23.4% (95% CI: 20.3 to 26.9). Significant heterogeneity was observed between studies (Q = 664.9, p = 0.000, I^2 = 97.9%) and consequently the random effect model was employed for the meta-analysis.

Attitude towards emergency contraceptive indicates, among the 15 studies included in the meta-analysis, 13 reported information related to attitude towards ECs and hence were included in the assessment. In the assessment the average prevalence rate of positive attitude towards EC was 42.6% (95% CI: 41.4 to 43.8) see Figure 3. The highest prevalence of good/ positive attitude towards ECs was reported from Adama University in 2010 with 62.9% (95% CI: 59.1 to 66.5) and the lowest rate reported from Aksum University in 2014 with 12.4% (95% CI: 10.1 to 15.2). Significant heterogeneity was observed between studies (Q = 526.4, p = 0.000, I^2 = 97.7%) and consequently the random effect model was employed for the meta-analysis.

DISCUSSION

In many low income countries lack of knowledge about and inadequate access to EC has resulted in women resorting to unsafe or illegal abortions[25]. In this systemic review and meta-analysis 15 studies aimed at assessing the level of knowledge, attitude and practice of ECs were selected and included. The evidence from the selected articles of meta-analysis, the pooled level of knowledge, attitude and magnitude of utilization of ECs were 57.7, 42.6 and 9.2%, respectively.

Level of awareness regarding ECs has tremendous impact on the utilization of EC. In this meta-analysis the overall pooled prevalence of knowledge about ECs was 57.7 % (95% CI: 49.8 to 65.3). This finding reveals that more than two fifth of the respondents do not have awareness regarding EC methods. There was variation in the level of awareness among universities in Ethiopia, the highest level of knowledge was observed in Addis Ababa University (84.2%) but the lowest level in Aksum University (23.4%). This variation may be due to a difference in proximity of the respondents to sources of information that can intern influence awareness on ECs. The pooled prevalence of awareness regarding ECs was relatively higher as compared to the results of studies conducted in universities of Ghana (43.2%)[26], Uganda (45.1%)[27] and South Africa (56.5%)[28] but relatively lower than those of many other studies conducted among university students found in Nigeria (67.8%)[29], Cameroon (63%)[30], Nepal (66%)[31] and Mexico (95%)[32].

Although it is believed that parents, teachers and trained personnel could provide information on contraceptives, their attitude could prevent youths from seeking advice from them[33]. The result from this meta -analysis revealed that the overall pooled prevalence of the attitude towards EC was 42.6% (95% CI: 41.4 to 43.8). From this finding, more than half of the respondents have negative attitude towards EC. This might be due to lack of awareness, misconception regarding utilization of EC, concerns associated with religiosity, cultural and societal beliefs.

Although EC is not recommended as a routine family planning method, it is a very useful method after unprotected sexual intercourse to reduce the chance of unplanned or unwanted pregnancies[29]. Emergency contraceptive is an effective means of preventing unwanted pregnancies, but unfortunately, the large numbers of university students are unaware of it. In this meta-analysis, the pooled prevalence of practice of EC among participants of the studies is very low 9.2% (95% CI: 6.6 to 12.6). The possible reason for low EC utilization rate could be due to the fact that, less proportion sexually active participants, lack of awareness of its use and side effects, lack of correct information, low health promotion and availability of the methods in most health institutions. The pooled utilization of EC among university students was relatively higher in studies conducted in South African (28%)[34] but lower than in studies conducted in Cameroon (7.4%)[30], Nigeria (5.7%)[35].

This study does have several limitations with all pooled analyses containing significant heterogeneity and subsequently should be interpreted with caution. The results should considered generalizable as they include a broad geographical cross-section from Ethio-

pia. Potential factors contributing to the variability include location (setting), time of the study and characteristics of the population. Such heterogeneity is to be expected though considering the diverse cultures and ethnic groups found in Ethiopia. Although many would argue that in the presence of such significant heterogeneity a meta-analysis should not be presented, the researchers believe that providing the reader with the pooled prevalence estimates and a caution relating to the presence of heterogeneity will allow them to obtain a broad perspective examining the level of knowledge, attitude and utilization of EC among university students. However, the researchers believe that this review still provides the reader with an overview of the current available evidence and highlights. There is also a potential gap due to reporting biases that need to be considered in future investigations and research.

CONCLUSION

The results of this meta-analysis indicate that the overall level of knowledge, attitude and especially the practice on EC among university students was very low. Based on the findings, it is crucial to develop a strategy to increase awareness, positive attitude, need based practice of ECs and decrease barriers among respondents.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests in this study.

Corresponding Author:

Berhanemeskel Weldegerima Atsbeha

Department of Pharmaceutics, School of Pharmacy, College of Medical and Health Sciences,

University of Gondar, Gondar, Ethiopia. :

Email: bilaltss4@gmail.com

REFERENCES

1. Darega ND. Unplanned pregnancy: Prevalence and Associated factors among Antenatal Care Attending Women in Bale Zone, Oromiya Region, Southeast Ethiopia: A facility-based cross sectional study. Global Journal of Medical Research. 2015;15(4).
2. Hamdela B, Tilahun T. Unwanted pregnancy and associated factors among pregnant married women in Hosanna Town, Southern Ethiopia. PLoS One. 2012;7(6):e39074.
3. Larsson M. The Adoption of a New Contraceptive Method–Surveys and Interventions Regarding Emergency Contraception. 2004.
4. Manena-Netshikweta M. Knowledge, perception and attitude regarding contraceptives among secondary school learners in the Limpopo province, November 2007, South Africa. South Africa. 2007.
5. Byamugisha JK. User and provider perspectives emergency contraception among young people in Uganda, 2007, Kampala and Stockholm: PHD thesis) available: www. nfog. org/theses/Josaphat% 20Kayogoza. pdf.
6. Tadesse E, Yoseph S, Gossa A, Muletta E, Pogharian D. Illegal abortion in five hospitals in Addis Ababa. Ethiop Med J. 1994;32(4):283-84.
7. Larsson M, Aneblom G, Lurenius K, Westerling R, Tyden T. Limited impact of an intervention regarding emergency contraceptive pills in Sweden- repeated surveys among abortion applicants. European Journal of Contraception and Reproductive Health Care. 2006;11(4):270-6.
8. Tamire W, Enqueselassie F. Knowledge, Attitude, and Practice on Emergency Contraceptives Among Female University Students In Addis Ababa, Ethiopia. Ethiopian Journal of Health Development. 2007;21(2):111-6.
9. Tajure N, Pharm B. Knowledge, Attitude and Practice of Emergency Contraception Among Graduating Female Students of Jimma University, Southwest Ethiopia. Ethiopian Journal of Health Sciences. 2010;20 (2):91-7.
10. Ahmed FA, Moussa KM, Petterson KO, Asamoah BO. Assessing Knowledge, Attitude, and Practice of Emergency Contraception: A Cross- Sectional Study Among Ethiopian Undergraduate Female Students. BMC public health. 2012;12:110.
11. Lenjisa JL, Getachew ZG, Tola NL, Kifle ST, Getachew D, Bekele GDD, et al. Knowledge, Attitude and Practice of Emergency Contraceptives Among Ambo University Female Students, West Showa, Ethiopia. Research Journal of Pharmaceutical Sciences ISSN. 2013;2319:555X.
12. Tilahun D., Assefa T., Belachew T. Knowledge, Attitude and Practice of Emergency Contraceptives Among Adama University Female Students. Ethiop J Health Sci. 2010; 20(3): 195–202.
13. Etenesh G. Assessment of Knowledge, Attitude and Utilization of Emergency Contraception among Mekelle University Female Undergraduate Students: AAU; 2009.

14. Gelaye AA, Taye KN, Mekonen T. Magnitude and risk factors of abortion among regular female students in Wolaita Sodo University, Ethiopia. BMC women's health. 2014;14:50.
15. Tesema HB. Knowledge, Attitude and Practice on Emergency Contraception and Associated Factors among Female Students of Debre-Markos university, Debre-Markos town, East Gojam Zone, North west Ethiopia, 2013. Global Journal of Medical Research. 2015;15(1).
16. Tolossa E., Meshesha B., Alemu Abajobir A. Assessment of level of knowledge and utilization of emergency contraception among female students of Hawassa University, South Ethiopia. Advances in Reproductive Sciences. 2013;01(03):51-6.
17. Wasie B, Belyhun Y, Moges B, Amare B. Effect of emergency oral contraceptive use on condom utilization and sexual risk taking behaviours among university students, Northwest Ethiopia: a cross-sectional study. BMC research notes. 2012;5:501.
18. Zeleke G, Zebenay Z, Weldegerima B. Knowledge Attitude and Practice of Emergency Contraceptives in Bahir Dar University Female Students. Ethiopian Journal of Reproductive Health. 2009;3:59-64.
19. Desta B, Regassa N. On emergency contraception among female students of Haramaya University, Ethiopia: surveying the level of knowledge and attitude. Educational research. 2011;2(4):1106-17.
20. Giziyenesh K. Assesment of Factors Affecting Emergency Contraceptive Use and Prevalence of Unwanted Pregnancy Among Female Students In Aksum Univerisity: AAU; 2014.
21. Hailemariam TG, Tesfaye T, Melese T, Alemayehu W, Kenore Y, Lelamo Y, et al. Sexual experiences and emergency contraceptive use among female university students: a cross-sectional study at Wachamo University, Ethiopia. BMC research notes. 2015;8:112.
22. Shiferaw B, Gashaw B, Tesso F. Knowledge, Attitude and Practice of Emergency Contraceptives among Mizan-Tepi University Female Students, South West Ethiopia. Pain Manage Med. 2016;2(111):2.
23. Stroup DF, Berlin JA, Morton SC, Olkin I, Williamson GD, Rennie D, et al. Meta-analysis of observational studies in epidemiology: a proposal for reporting. Jama. 2000;283(15):2008-12.
24. Hoy D, Brooks P, Woolf A, Blyth F, March L, Bain C, et al. Assessing risk of bias in prevalence studies: modification of an existing tool and evidence of interrater agreement. Journal of clinical epidemiology. (9):934-9.
25. Hoque ME, Ghuman S. Knowledge, practices, and attitudes of emergency contraception among female university students in KwaZulu-Natal, South Africa. PLoS One. 2012;7(9):e46346.
26. Baiden F, Awini E, Clerk C. Perception of university students in Ghana about emergency contraception. Contraception. 2002;66(1):23-6.
27. Byamugisha JK, Mirembe FM, Faxelid E, Gemzell-Danielsson K. Emergency contraception and fertility awareness among university students in Kampala, Uganda. African health sciences. 2006;6(4).

28. Roberts C, Moodley J, Esterhuizen T. Emergency contraception: knowledge and practices of tertiary students in Durban, South Africa. Journal of Obstetrics and Gynaecology. 2004;24(4):441-5.
29. Ebuehi O, Ekanem E, Ebuehi O, Mills S, Rogo K, Ahuka O, et al. Knowledge and practice of emergency contraception among female undergraduates in the University of Lagos Nigeria. East African medical journal. 1969;83(3):90-5.
30. Kongnyuy EJ, Ngassa P, Fomulu N, Wiysonge CS, Kouam L, Doh AS. A survey of knowledge, attitudes and practice of emergency contraception among university students in Cameroon. BMC Emergency Medicine. 2007;7(1):1.
31. Adhikari R. Factors affecting awareness of emergency contraception among college students in Kathmandu, Nepal. BMC women's health. 2009;9(1):1.
32. Tapia-Curiel A, Villaseñor-Farías M, Nuño-Gutiérrez B. Knowledge and attitudes about using emergency contraceptives among young college students. Revista medica del Instituto Mexicano del Seguro Social. 2007;46 (1):33-41.
33. Arowojolu A, Ilesanmi A, Roberts O, Okunola M. Sexuality, contraceptive choice and AIDS awareness among Nigerian undergraduates. African journal of reproductive health. 2002:60-70.
34. Kistnasamy EJ, Reddy P, Jordaan J. An evaluation of the knowledge, attitude and practices of South African university students regarding the use of emergency contraception and of art as an advocacy tool. South African Family Practice. 2009;51(5):423-6.
35. Abasiattai A, Umoiyoho A, Bassey E, Etuk S, Udoma E. Misconception of emergency contraception among tertiary school students in Akwa Ibom State, South Nigeria. Nigerian journal of clinical practice. 2007;10 (1):30-4.

SPONTANEOUS BILATERAL AMPULLARY TUBAL ECTOPIC PREGNANCY IN AN ETHIOPIAN WOMAN: CASE REPORT

Muhidin Abdo Banko, MD

ABSTRACT

Bilateral tubal ectopic pregnancy is the rarest form of ectopic pregnancy (1), usually occurs following ovulation stimulation. Preoperative diagnosis is very difficult. We are presenting a case of bilateral tubal ectopic pregnancy occurring spontaneously in an Ethiopian woman. The diagnosis of ectopic pregnancy was made on clinical bases and ultrasonography. However, at surgery bilateral tubal ectopic pregnancy was diagnosed & confirmed on pathological examination.

As to our knowledge there is no reported case of bilateral ectopic pregnancy in Ethiopia based on extensive literature search we did.

(Ethiopian Journal of Reproductive Health 2017;9:72-77)

INTRODUCTION

The incidence of ectopic pregnancy is about 8-11 per 1000 pregnancies. Ectopic pregnancy is still an important cause of maternal mortality. 98% of extra uterine pregnancy is tubal. Incidence of bilateral tubal ectopic pregnancy is about 1 in 725 to 1 in 1580 ectopic pregnancies and 1 in 200,000 intra uterine pregnancies[1]. The common risk factors are assisted reproductive technique, previous pelvic inflammatory disease, and previous ectopic pregnancy. Bilateral tubal ectopic pregnancies in absence of preceding induction of ovulation are extremely rare. There are no cases reported in which pre-operative diagnosis of bilateral ectopic pregnancy was made. The case reported here has occurred spontaneously. Most gynecologists are familiar with typical presentation of ectopic pregnancy and manage these cases well, unusual cases like this patient may go undiagnosed and the consequences can be devastating.

CASE REPORT

A 38 years old Ethiopian Woman Gravida 6, Para 0, Abortion 5 presented with amenorrhea of 7 weeks followed by bleeding per vagina and excruciating left lower abdominal pain since 48 hours before admission. She had myomectomy done three years back and had five spontaneous abortions all at first trimester prior to her myomectomy. Her past menstrual cycles were regular.

On examination she was conscious acutely sick looking, pale mucous membranes and tachy- cardia of 128/min her blood pressure was 90/60 mmHg respiratory rate of 28/min.

Abdomen was full and tender bilaterally on lower abdomen. Tender cervical movements and bilateral adenexal mass size 6x5cm on the right and 4x5cm on left side respectively.

Cervix closed, fullness in all the fornices with sever tenderness and blood on examining fingers.

Hematologic examination showed

WBC – 12.9x $10^3/\mu l$

Hemoglobin – 9.6 gm/dl

Haematocreat – 28.4 %; Urine HCG – Positive

Abdomino-pelvic ultrasound examination showed – normal size uterus, with endometrial thickness of 1.9cm, with smooth outline. There was free fluid collection in pelvic region and inter loop space. There was left adenexal 9.7cm by 5.3cm complex mass and right adenexal 5.1cm by 5cm mass with cystic space in it thought to a gestational sac. No fetal pole was noted.

Figure 1: Left adenexa 9.7cm by 5.3cm complex mass and 5.1cm by 5cm mass with cystic space in it thought to be a gestational sac on the right adenexa. No fetal pole was noted.

Emergency exploratory laparatomy done with pre-operative diagnoses of left sided ectopic pregnancy and right side pelvic mass. At laparotomy hemoperitoneum of 2000ml drained. Uterus looks normal, there was no adhesions or new myoma. There was ruptured ampullary mass with active bleeding and size of mass 7cm x 8cm on the left side. Even though there was actively bleeding ruptured ampullary mass seen on the left side, we then explored the rest of abdomen and pelvis beginning with the right adenexa given the pre-operative ultrasound findings. There was 5X6cm right ampullary mass with active bleeding from the fimbria.

Figure 2: Intraoperative Finding of Ampullary Tubal Mass on the Right Side

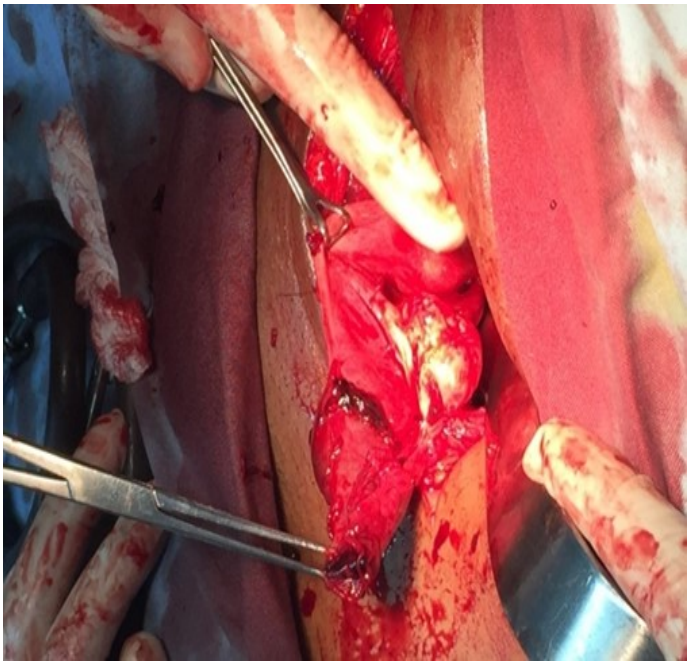

Figure 3: Intraoperative Finding of Ampullary Tubal Mass on the Left Side

Figure 4: Both left and right tubal masses after salpingectomy on both sides

In view of these findings, bilateral Salpingectomy done, hemostasis secured. The removed tissues on both sides kept for histo-pathology. Received 2 units of cross matched blood.

Post-operative follow-up was uneventful and the pa-

tient was discharged on the third day post-operation. Had uneventful post-operative course since six weeks post-op. Currently once undergone invitro-fertilization but failed and again planned for the second trial of IVF

Histo-pathologic examination of the specimens, excised from both left and right fallopian tubes showed hemorrhagic tubal tissues with chorionic villi, on both tubes consistent with bilateral ampullary tubal ectopic pregnancies.

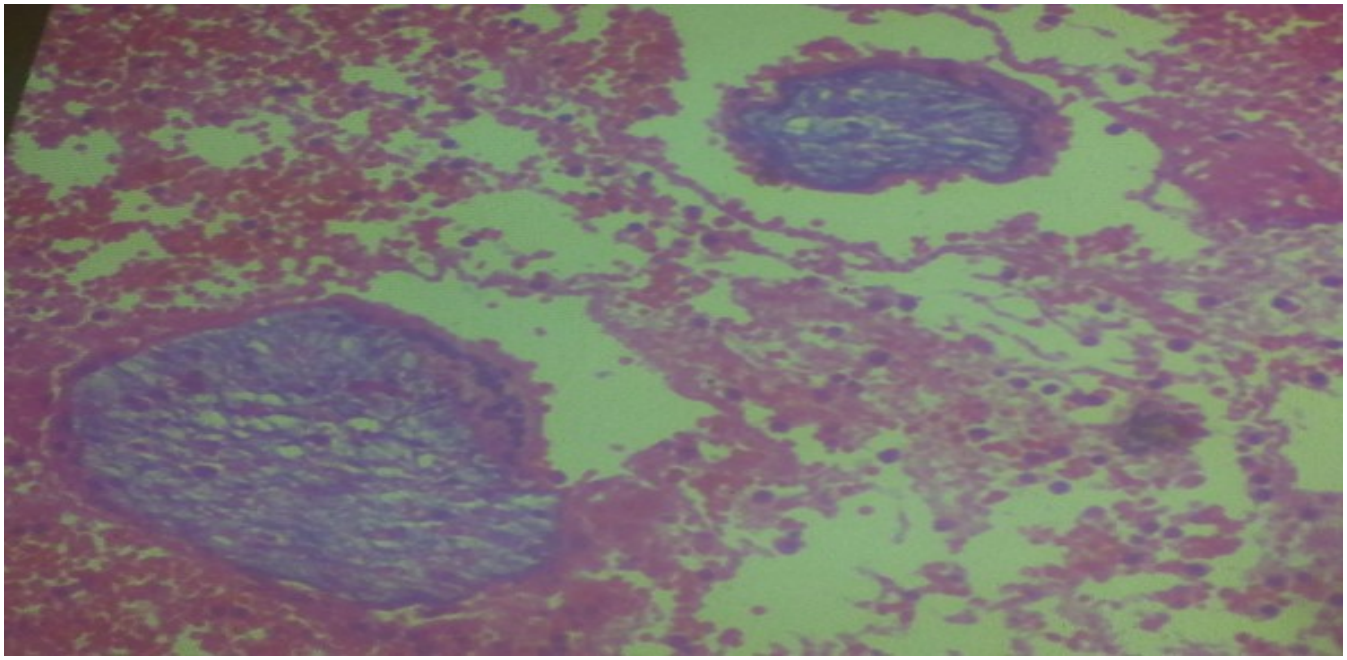

Figure 5: Histo-pathologic Finding from Left Fallopian Tube Showing Hemorrhagic Tissue with Chorionic Villi

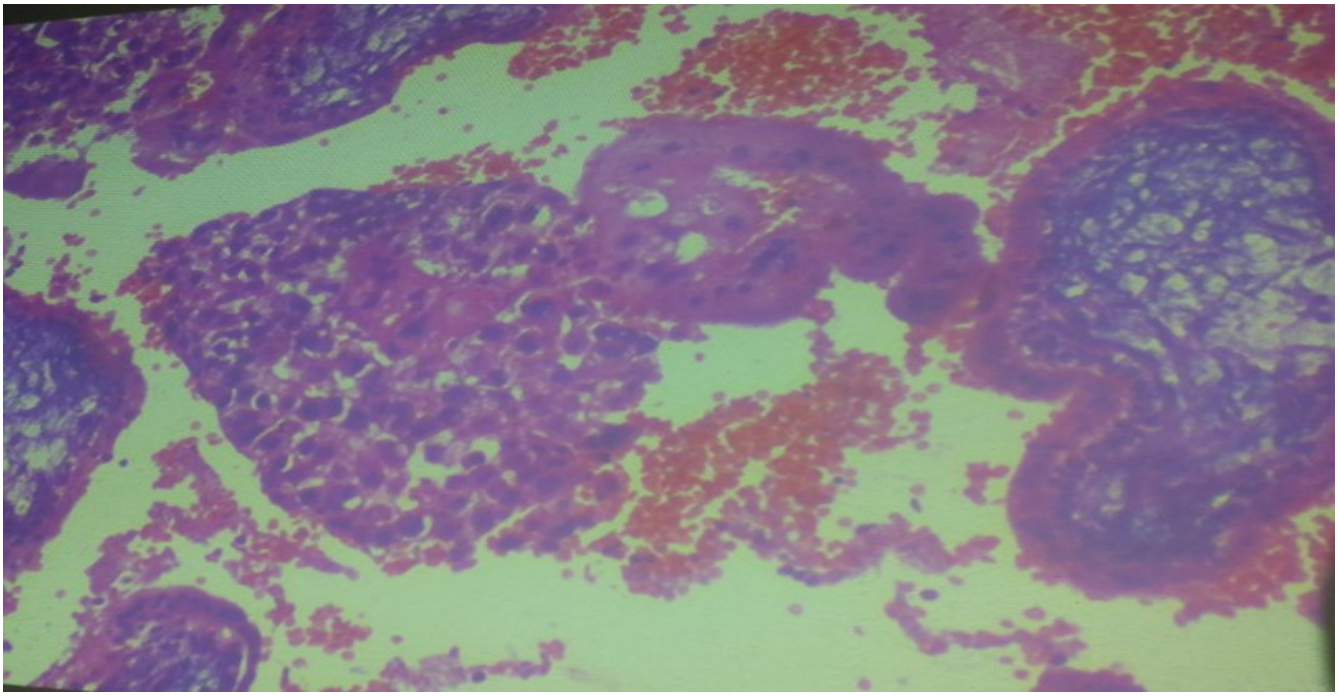

Figure 6: Histo-pathologic Finding from Right Fallopian Tube Showing Hemorrhagic Tissue with Chorionic Villi

DISCUSSION

Many risk factors for ectopic pregnancy are recognized that includes PID (Pelvic inflammatory disease), previous tubal surgery and assisted reproductive technique. In the absence of known risk factors suspicion must remain high, as there are many reported cases of ectopic pregnancies, including bilateral tubal ectopic in which none of the traditional risk factors are identified.[2].

Incidence of bilateral ectopic is between 1 in 125 and 1 in 1580 extra uterine pregnancies (1) and 1 in 200,000 live births. To date more than 200 cases of bilateral tubal ectopic pregnancies have been reported[3]. There are 3 possible explanations for bilateral ectopic pregnancy: A. simultaneous multiple ovulation B. sequential impregnation C. transperitonial migration of trophoblastic cells from one extrauterine pregnancy to the other tube with implantation there[3].

Bilateral tubal ectopic pregnancy is difficult to diagnose pre-operatively indicating limitations of ultrasonography[4].

Himangin B, Behera Rectal reported a case of spontaneous bilateral tubal ectopic in which left tubal pregnancy was intact and right tubal ectopic was ruptured. Three quarter of both the tubes being damaged bilateral Salpingectomy was done. Jorge martinet et al, reported a case of bilateral tubal ectopic where USG showed normal uterus with an echogenic normal uterus with an echogenic image in left tube (15mmX 13mm) and in right tube (23mmX20mm). At laparoscopy right tube appeared as ectopic and left tube as hydrosalpinx, bilateral Salpingectomy were performed and pathology reports suggest bilateral tubal ectopic pregnancy[5]. Usually the diagnosis of bilateral ectopic pregnancy is made intra operatively.

The appropriate surgical procedure after an incidental finding of unilateral or bilateral ectopic pregnancy must be considered in these patients; and the choice of fertility preserving surgery must be weighed against to increased risk of recurrence[6]. Existing studies underline the need for a good case selection. Our patient, because of her acute symptoms and intra operative finding was not suitable for either conservative surgery or medical management.

CONCLUSION

⇒ We should give emphasis to look both adnexae during surgery for ectopic pregnancy.

⇒ This case demonstrates the importance of thoroughly examining the entire pelvis at the time of exploratory laparotomy undertaken for a suspected ectopic pregnancy.

⇒ The patient who has had one ectopic pregnancy is at risk of having another in the future and also at the same time. The diagnosis of bilateral tubal ectopic pregnancy is usually made intraoperatively, this underscores the importance of identifying and closely examining both tubes at the time of surgery even in the presence of significant adhesion because undiagnosed ectopic pregnancy is an important cause of maternal mortality.

REFERENCES

1. Adair CD et al. Bilateral ectopic pregnancies after bilateral partial Salpingectomy. A case report. Journal of reproductive medicine, 1994;39(2)131-3.
2. GAAl-Quraan. G.A et al. Spontaneous ruptured and intact bilateral tubal ectopic pregnancy: Eastern Mediterranean can health journal. 2007; 13:972-974.
3. Tabachnikolf R.M. Bilateral tubal pregnancy: A report of unusual case. J Repord MED. 1998; 43:707-709
4. Goes E. ultrasound studies in ectopic pregnancies. Journal Belge de Rediologie. 1998; 81:14-16
5. Hi mangini B. spontaneous bilateral tubal ectopic pregnancy: pravara MedRev. 2010; 5:19-21
6. Fish back HR. Bilateral simultaneous tubal pregnancy AMJ obstet Gynecol.1939; 37:1035
7. Rahul DM, et al. Bilateral tubal pregnancy: A Diagnostic dilemma open
8. Ashis KR. Arare case of spontaneous Bilateral Tubal Ectopic Pregnancy Indian medical Gazette.2014;1.33-34
9. Ryan Seldan Bilateral Tubal Ectopic pregnancy: Atale of caution. Academic Emergency medicine. 2000; 7:1160-1163.

A RECURRENT LACTATING VULVAR BREAST AND GIGANTOMASTIA DEVELOPING DURING PREGNANCY: A CASE REPORT

Mekonnen Negash, MD[1]; Bokre Tsegaye, MD[2]; Yewondwossen Ergete, MD[3]; Jacob Schneider, MD[4]
[1&2]Betsegah Mothers' and Children's Hospital, Addis Ababa
[3&4]Department of pathology, School of Medicine, College of Health Sciences, Addis Ababa

ABSTRACT

Gigantomastia during pregnancy is a rare disorder that is characterized by diffuse, extreme, and incapacitating breast hypertrophy. Ectopic breast tissue is defined as glands of breast tissue located outside of the normal anatomic breasts. The factors controlling breast growth are complex and not completely understood. Breast tissue including ectopic displays all of the characteristics of normal breast tissue including growth during puberty, pregnancy and lactation. Cases of ectopic vulvar lactating breast with gigantomastia have been described in only few cases in the literature. Hence, we present this rare case of a gravid patient with recurrent lactating vulvar breast and gigantomastia. This was managed conservatively with postpartum resolution of gigantomastia and excision of the vulvar mass.

(Ethiopian Journal of Reproductive Health 2017;9:1-6)

INTRODUCTION

Ectopic breast is any type of breast tissue found outside of two normally situated pectoral breasts and found along the primitive embryonic milk lines which extend from the axilla to the groin[1]. Incomplete involution anywhere along the primitive milk streak can result in ectopic mammary tissue[2]. The condition ranges from a fully developed breast with a nipple to only accessory nipples or only breast glands[1].

Although the incidence of ectopic breast tissue is reported to occur in 2-6% of women, surprisingly there are only a few case reports in the literature[3]. Different parts of the body can be involved but the axilla is the most common site accounting for 60%–70% of cases and the most common manifestation is accessory nipple[1, 4]. Vulvar or suprapubic involvement is very rare and few cases have been reported to date[4]. The ectopic breast tissue displays all of the characteristics of normal breast tissue including growth during puberty and pregnancy, lactation, fibrocystic disease and growth of fibroadenoma, phylloides tumors, extramammary Paget's disease and any of the various histological malignancies[5].

Gestational gigantomastia is a very rare condition and only about 100 cases have been reported in the literature. Physiological enlargement of the breasts occurs at puberty and during pregnancy, when it starts very early and is sustained until delivery. The factors controlling breast growth are complex and not completely understood, although oestrogens, progesterones, prolactin, growth hormone and adrenal steroids are all known to play a role. Sometimes this process goes wrong resulting in an excessively large and painful breast called gestational gigantomastia (gravidic gigantomastia, mammary hyperplasia of pregnancy) or virginal hyperplasia when it occurs at puberty. This rare but important condition of the breast not only interferes with breast feeding but may cause severe maternal morbidity and even mortality[6]. True gigantomastia develops rapidly during pregnancy, undergoes regression after delivery, and recurs with subsequent pregnancy[7].

The aim of this study was to report two extremely rare conditions occurring in a single patient- a case of recurrent lactating ectopic breast in bilateral vulva and gigantomastia in pregnancy of 28-year-old woman. Thus, practicing gynecologists and obstetricians become more confident in managing such a rare condition.

CASE

A 28-year-old Gravida II Para I at 22 weeks dated by her last menstrual period presented to antenatal care clinic. Like the first pregnancy she complains of an increase in the size of both breasts and vulvar mass that appeared at the beginning of the fourth month of pregnancy. During the remaining follow up of pregnancy the size and discomfort breasts became bothersome and sometimes had to ask support during standing from supine and sitting position. With the same rate the vulvar mass became voluminous and caused walking difficult. Previous pregnancy had similar events but with the lesser degree and she gave birth by ceascerean section. She has no specific medical, surgical or family history. Routine antenatal tests were normal.

On physical examination both breasts were grossly enlarged and extended to the level of the umbilicus (Fig. 1).

Figure 1: Gigantomastia in a term pregnant lady

The left breast was slightly bigger than the right. Both breasts had dilated veins and exhibited peau d'orange,and a milky discharge could be expressed from each nipple. There are seven firm masses ranging from 5x6 cm to 8x10cm in the labia majora and clitoral region (See fig 2).

Figure 2: Seven nodular masses located in the bilateral labia majora and clitoral region in a term pregnant lady. Four masses were present in the left labium majora and two in the left labium majora and one in periclitoral region.

The routine prenatal laboratories as well as hormone studies were all within normal parameters. With an indication of previous ceascerean section scar and vulvar mass, a healthy neonate was delivered by elective ceascerean section at term. Few weeks postpartum the vulvar mass started to ooze out whitish non-offensive fluid which later ceased spontaneously three months later when the lady stops breastfeeding. The size of the vulvar masses has decreased during annual examination to 2x3cm to 6x7cm (See fig 3).

Figure 3: Seven vulvar nodular masses one year postpartum.

Surgical excision of vulvar masses revealed seven encapsulated lobules of variable sizes measuring from 2x3cm to 5x8cm. The gross finding of the cross sectioned specimen showed solid areas with multiple cysts having whitish mucinous secretions. Microscopically, the masses were composed of glandular tissue with well organized ducts and lobular structures divided by thin fibrous stroma. The glands showed proliferation of regular looking duct epithelium with some areas of cystic dilatation containing granular or amorphous proteinaceous material. The cytoplasm of the

luminal cells was vacuolated with apical snouts typical of the lactating breast (See fig 4).

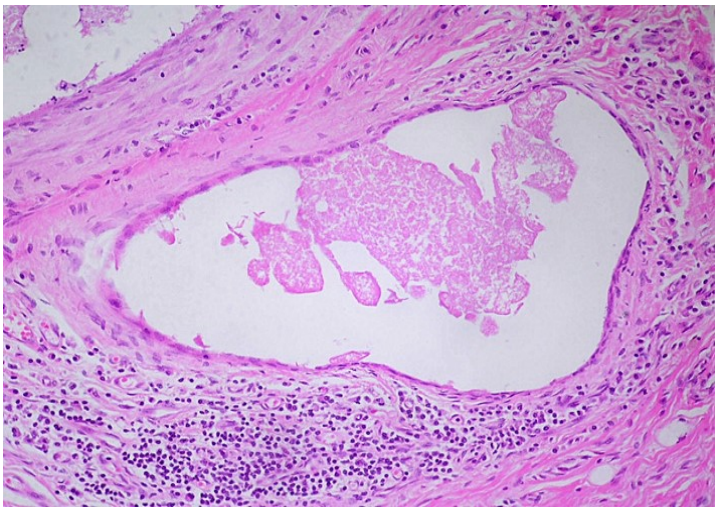

Figure 4: The glands are lined by columnar epithelial cells and an underlying myoepithelial cell layer. The cytoplasm of the luminal cells is vacuolated, and the tumor cells show reactive nuclear changes, including a uniform increase in size, chromatin clearing, and prominent nucleoli.

DISCUSSION

The first case of vulvar ectopic breast is in 1875 by Hartung[8]. Vulvar ectopic breast usually takes the form of breast glandular tissue only; fully developed breasts with nipples are extremely rare. It complete with nipple and have been reported only four times. Vulvar ectopic breasts that consist only of breast ducts and lobules are reported much more frequently [(1)]. Ectopic breast tissue located in vulva may present with growth of the mass and cause pain[5].

Gigantomastia during pregnancy is characterized by diffuse, extreme, and incapacitating breast hypertrophy [(9)]. To date, there is no universally accepted definition for gigantomastia; however, Dancey *et al.* (2007) state that a review of the medical literature suggests that definitions range from a D-cup bra size to breast modification requiring reduction of over 0.8 - 2 kg[10]. Massive hypertrophy of the breasts in pregnancy is a very rare (1 in 100 000) condition[11].

The aetiology of Gestational Gigantomastia is unknown but various factors have been proposed. These include over-sensitivity to or over-production of hormones such as oestrogen, human chorionic gonadotrophin, human placental lactogen and prolactin[6]. Autoimmune disorders, high IGF-1and decreased catabolism of hormones have also been proposed[10, 12]. In our case hormone studies were normal.

Clinical features of gestational gigantomastia may include mastalgia, ulceration, posture problems, back pain and chronic traction injury to $4^{th}/5^{th}/6^{th}$ intercostal nerves with resultant loss of nipple sensation and obstetrical complications such as decreased fetal growth[10]. Lactational change develops mostly in later gestations and often persists after the period of lactation[1].

Treatment of gigantomastia is based on the person's symptoms and may include conservative management, breast reduction, mastectomy with or without reconstruction or a combination of treatments[10,11].

Since Bell first reported vulvar lactating breast tissue in 1926, two cases of lactating ectopic breast with breast abnormality have been reported. The patients in these two cases had gigantomastia with myasthenia in one patient and hypertrophy and chronic cystic mastitis of breast and axillary supernumerary breast tissue in the other patient[1]. Similarly, the patient in our case has lactating vulvar breast tissue and breast abnormality-gigantomastia, showing exaggerated hor-

monal response of the involved Heterotropic Breast.

There are two theories to account for ectopic breast in the vulva, and these are not mutually exclusive. In the traditional theory, normal breast tissue development takes place during the 4th and 5th weeks of gestation—the embryogenic period. Two band-like strips of ectoderm, the mammary ridges, occur along the sides of the embryo during the 6th week of gestation and extend bilaterally from the mid axillae through the normal breasts inferiorly to the medial groin and vulva. Normally, the mammary ridges disappear except for in the pectoral region, where the primary and secondary buds develop ini-tially and mammary glands with lactiferous ducts develop later. As a result of an embryologic abnormality, breast tissue may remain anywhere from the axilla to the vulva and may form any part of or a complete, functioning breast.

The other theory is that vulvar ectopic breast derives from mammary-like glands of the anogenital region. Mammary-like glands are a newly described skin appendage normally present in the interlabial sulcus of the vulva, perineal, and perianal skin. The mammary-like glands not only have a close histologic resemblance to eutopic breast ducts, but, unlike all other skin appendages, are estrogen and progesterone hormone receptor–positive. Furthermore, the propo-nent of the mammary-like gland theory of vulvar ectopic breast lesions states that there is no convinc-ing evidence for caudal extension of the milk ridge beyond the pectoral region in humans and that, even if there were, the milk ridge theory could not account for perianal breast lesions[13].

The ectopic breast tissue is subject to hormone responses and may develop benign and malignant pathologic processes similar to those seen in normally located breast tissue [(14)]. The most common changes are fibrocystic disease, fibroade-noma, and lactation changes. Cystosarcoma phyl-lodes and primary vulvar breast carcinoma also have been reported[1].

Therefore, although the incidence of ec-topic mammary tissue of the vulva is low, this possi-bility should be considered when evaluating patients with mass lesions of the vulva. Because of the chance of pathological change of ectopic breast tissue, such vulvar masses of breast tissue should be excised.

REFERENCES

1. Eung-Seok Lee, MD, and Insun Kim, MD, Multiple Vulvar Lactating Adenomas. Obstet Gynecol 2011; 118:478–80.
2. Dhaoui A, Nfoussi H, Kchir N, Haouet S. Vulvar lactating adenoma associated to a fibroadenoma: common neoplasms in an uncommon site. Pan African Medical Journal 2013 Feb; 13(1):47-47.
3. Kazakov DV, Spagnolo DV et al. Lesions of anogenital mammary-like glands: an update. Adv Anat Pathol 2011 Jan; 18(1):1-283.
4. J.H. Hong,M.H. Oh,J.Y. Hur,J.K. Lee Accessory breast tissue presenting as a vulvar mass in an adolescent girl. Arch Gynecol Obstet 2009;280: 317-320.
5. Kelly L. Pieh-Holder, Lactational Ectopic Breast Tissue of the Vulva: Case Report and Brief Historical Review. Breast feeding Medicine. 2013 ;8 (2): 223-225.
6. B U Ezem, C C Osuagwu, K A Opara. Gestational gigantomastia with complete resolution in a Nigerian woman. BMJ Case Reports 2011; 10: 1-5
7. Kulkarni D, Beechey-Newman N, Hamed H, Fentiman IS. Gigantomastia: A problem of local recurrence. The Breast. 2006; 15:1: 100-100
8. Williams WR. A Monograph on Diseases of the Breast. John, Bale and Sons, London, 1894
9. Scarabin C, Koskas M, Bornes M et al. Gigantomastia and vulvar lactating adenoma in a patient with myasthenia during pregnancy. Am J Obstet Gynecol. 2010 Oct; 203(4):5-8.
10. Dancey A, K han M, Dawson J, *e t al.* Gigantomastia-a classification and review of the literature. *J Plast Reconstr Aesthet Surg.* 2008; 61: 493 – 502
11. Antveski BM, Smilevski DA, et al. Extreme gigantomastia in pregnancy: Case report and review of literature. Arch Gynecol Obstet. 2007; 275: 149–53
12. Rene L, Walley T.Gestational Macromastia. The American Journal of surgery 1984 Sep; 148 (3): 413-418
13. Gugliotta P, Fibbi ML, Fessia L, Canevini P, Bussolati G. Lactating supernumerary mammary gland tissue in the vulva. Appl Pathol 1983; 1:61–5
14. Carter JE, Mizell KN, Tucker JA. Mammary-type fibroepithelial neoplasms of the vulva: a case report and review of the literature. J Cutan Pathol. 2008 Feb;35(2):246-9.