ADDIS ABABA UNIVERSITY

SCHOOL OF PUBLIC HEALTH

THE CONTRIBUTION OF COMMUNITY BASED INOVATIVE PROGRAM & FEMALE DEVELOPMENT ARMY ON BASIC MATERNAL HEALTH CARE UTILIZATION

In Arada sub city, Addis Ababa

BY: ASHAGRE SISAY (BSC)

A research paper submitted to Addis Ababa University, college of health science; school of public health in partial fulfillment of the requirement for the degree of Public Health (MPH).

February, 2016

Addis Ababa, Ethiopia

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Board of Examiner's (BoE) Approval Sheet

As members of the examining board of the final MPH open defense, we certify that we have read and evaluated the thesis prepared by Ashagre Sisay entitled," contribution of community based innovative program and female development army in basic maternal health care utilization" and recommend that it is accepted as fulfilling the thesis required for the degree of **Master of Public Health.**

Name of chairman	Signature	Date
Name of Major Advisor	Signature	Date
Name of Internal Examiner	Signature	Date
Name of External Examiner	Signature	Date

Final approval and acceptance of the thesis is contingent upon the submission of the final copy of the thesis to the School of graduate Council (SGC) of the candidate's Major School.

ACKNOWLEDGMENT

I would like to express my heartfelt gratitude to my advisor Ms. Birhan Tassew, for her support and contribution to this thesis. I would like also to give my gratitude to AAU, School of Public Health for creating this learning opportunity. My special acknowledge will also goes to the sub city health office, the district health center medical director and any other bodies for their full cooperation in the data collection and document review process.

My deepest heart felted gratitude will also goes to my Almighty GOD, for the courage and help he gave me in every step of my ways

I would like also to thank my parent for their support and for standing by my side in the entire education.

Table of content

List of tables

List of figures

List of acronyms

AOR …….adjusted odd ratio
COR ……Crude odd ratio
FBD ……..Facility based delivery
HAD ……. Health Development Army
HEP …… Health Extension Program
HEW …… Health Extension Worker
HF ……. Health facility
ID …….Institutional delivery
MHC …….Maternal health care
SAB ……...Skill attendant at birth
HHs ……Households
ANC ……..Antenatal Care
EDHS ……... Ethiopian Demographic and Health survey
HIV …….. Human Immune Virus
ICD ……. International Classification of Disease
PNC ……Postnatal Care
MDG …….Millennium development goal
TBA ……...Traditional Birth Attendant
WHO …….World Health Organization
MMR …….Maternal Mortality Ratio

Lists of abbreviation

BMHC ……..Basic Maternal Health Care
IPTp …… Intermittent preventive treatment of malaria for pregnancy
MCHC ……. Maternal and child health care
vCHW ……..Voluntary Community Health Worker

Abstract

Introduction; maternal mortality in Ethiopia is the highest in the world. According to the 2011 DHS the maternal mortality ratio was 676/100,000 live birth. It is believed that almost more than 90% of these death are preventable through the provision of basic maternal care. But due to many factors like socioeconomic inequalities and other cultural reasons, the vast majority of mothers were unable to access the basic care they need during maternity. Most of economically poor countries advised community based strategy to improve service quality and use

Objective; to assess the effect of community based innovative program addressing socio-economic inequalities on the basic maternal health care utilization, 2016

Method; this study employed cross-sectional descriptive community based study that were done in Arada sub city of Addis Ababa. 599 women's were selected at random using simple random sampling. Interviewer administered structured questionnaire was used as data collection instrument. Assessment was done on the three basic maternal health care service that have higher impact on maternal mortality. The significant contribution of the innovative programs on addressing inequalities on service utilization was also done through document review in addition to the interview. Logistic regression model was used in the multivariate analysis.

Result: the result showed 92% of the respondent had four ANC visits, 98% of them had facility based delivery and 73% had their PNC visits within 24 hrs after delivery. Socio demographic factors like education, age at first marriage, parity, occupation and economy were found to affect the utilization of the basic service. The logistic regression showed that the basic tasks of community based innovative programs had strong association with the utilization of the basic care.

Conclusion & recommendation: both socio-demographic factors & community based innovative programs were significantly associated with the basic MHC utilization. The contribution of the program found to be more significant among mothers from the lower wealth quantile. To improve utilization of the basic maternal health care services and the challenges it faces as a result of the socioeconomic inequalities in the different segment of the HHs, a community based health strategies should be implemented.

1: INTRODUCTION

1.1.Background

According to the 10th ICD, maternal death is defined as the death of a woman while pregnant or within 42 days after termination of pregnancy, irrespective of the site and duration of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes and more than 90% of these maternal death believed to be preventable (1).

Ethiopia is one of the six country which accounts 50% of maternal death occurs in the world, the 2000 EDHS showed that MMR was 871/100000 live birth. Most of this maternal death occurred as a result of the inadequate utilization of the basic maternal health care service like ANC, skilled birth attendant and PNC which are attributable to the socio-economic disparities within the population. (5) Due to its higher magnitude of maternal mortality, Ethiopia has signed the millennium development goals in order to reduce by three quarter in 2015 but report showed that the progress wasn't that promising, so in responding to this challenge, the country has developed community based health extension program as part of the health sector development program to improve equitable access to the basic maternal care at the house hold level (4).

A study done in the six region of SSA including Ethiopia found that mothers who came from the wealthier family tend to utilize more ANC, SBA and PNC compared to the poorest which witnessed that there is a huge disparity on the use of the basic maternal care services between the wealthiest and the poorest. This study also stated that some of the factors that plays a major role in the inequalities of maternal health care utilization includes affordability, availability of services, distance from the services, lack of transportation and infrastructure, sociocultural factors and lack of knowledge. But this disparity worse off in the urban poor community, it is found that women in the slum communities in the urban find care difficult to access even though there is a well-functioning health infrastructure is located in a closer proximity. (27, 28)

According to the national reports by FMoH on the selected regions of Tigray, Oromia and SNNPR showed that HEP organizes the community through HAD which would contribute to the establishment of health development teams hence resulted in a sharper increment in the uptake of high impact maternal and neonatal health intervention including SBA, PMTCT and also coordinate

the community for innovation to address local challenges including to avoid cultural factors that could negatively affect basic maternal health care, innovating traditional ambulance for mothers on labor for transporting to the nearest health facility, conducting monthly educational conference with mothers and conduct dialogue with TBA for avoiding home delivery. In the end mobilizing the community would impact the three delays maternal health care use (12). By considering the success story of the program in the rural, the gov't started implementing in the urban setting with the aim of bridging the gap between the community and health facility via accelerating service accessibility especially among high risk population like women and children (2, 3).

1.2. Statement of the problem

Maternal health has been considered as the most important public health issues in the world for the last two decades. Due to the higher magnitudes of maternal mortality, governments in the world develop a millennium development goal5 targeting to reduce the mortality from 1990/91 which was 810/100.000 liver birth to reduce by three quarter (218 per 100000 live birth) in the year 2015. These development initiatives targeted the precursors to maternal health including ANC, skilled attendant at the birth, management of obstetric care and PNC as a means to improve maternal health (11). Evidence also showed that skilled care before, during and after child birth saves the lives of women and babies and an estimate of 75% of the maternal death could be averted if all women had access to the services. The problem of equity was another factors that undermine the effort in the improvement of access of the basic maternal health care services. The difference between the low and middle income countries in the evidence showed that maternal mortality is more prevalent among the poor whereas access to basic maternal service is concentrated among the rich. The poor faces both the demand and supply side barriers to the health cares, so in order to address these issues, community based intervention have been initiated in most low middle income countries that will boost the service availability and utilization for the most vulnerable segment including women and children. (26)

The 2011 EDHS report showed that among the pregnant mothers 34% of them were only used ANC and 10% had their delivery in the health facility, 94% of birth takes place at home without the assistance of health professionals and more than 5% of the delivery done at home without any forms of assistance and the delivery happens while the mothers were alone in their house. In 2010, the country had scored 350 per 100,000 population which is 6.9 decline in 10 years which isn't

significant progress to achieve the goal (4). A study suggested most of the maternal death are attributable to inadequate service utilization during maternity as a result of socio-economic disparity with in the region including education, place of residence, wealth, economic stability in the HHs, women's earning & occupation, religions and birth order are most likely to affect the use of service. (5)

In order to impact the problem of maternal and new born within short period and the socio-economic disparities within the population, especial focus was given to providing basic maternal and newborn care. According to the current guideline, basic maternal health cares are considered as health care services prepared for pregnant mothers based on the principles of appropriates for use in low resource setting, effective in promoting health & survival of the mother, focused through targeted assessment & individualized care on most prevalent health issue affecting women during pregnancy with key practice of skilled birth attendant which will determine the life of both the mother and newborn. These basic care have focusing areas on promotion of health disease prevention, early detection of complication & birth preparedness and among other community related works which are the central focuses of the health extension program (6).

At the initial point the government develop community based innovative program hoping to achieve the millennium development goals. These program is developed with the aim of improving the access to basic health care with a special emphasis on child and maternal health. Recently due to its success story of the program in the rural, the gov't has adopted this program to the urban settings. In Addis Ababa the program has been implemented for the past 6 years with the aim of bridging the gap between the community and health facilities via improving the utilization of basic health care at the facility level. But the contribution of the program on the service use as to the best of my knowledge haven't been previous studied much especially at the sub city level and its effect on utilization of basic maternal health care including ANC, skilled attendant and PNC which would impact the maternal mortality. So the aim of this research study will fill the gap by measuring the contribution of the program on the utilization of these basic maternal care in Arada sub city which might help us understanding its role in the improvement in the utilization of basic maternal health care services among mothers in the sub city (14).

1.3. Significance of the study

The finding of the study will help the sub city health office as well as the health bureau of Addis Ababa for making informed decision and the possible means for strengthening the program by providing some information regarding the contribution of HEP on maternal health care utilization increment. In addition to that the study can also informs women and child office, the contribution of community based structures like FDA on service utilization among mother. The final works of this research paper can also be used as a literature material for researcher on related issues.

2. LITERATURE REVIEW

In the world 515,000 women at a minimum die every year as a result of complication during pregnancy or child birth. Of these death 99% (230,000/100,000 population) occurs in the developing countries while 16 per 100,000 happens in developed ones. The risk of dying as a result of pregnancy in high income countries is at least 100 times lower than that in low income country of Africa and Asia. One in 20 African women die largely of preventable death as compared to one in 400 in Europe. According to safe motherhood program fact sheet, death of a mother is considered as lose to both the family as well community because in most society women are responsible for the care of their children, the whole family management and their community in social as well as economical ways. So, the death of a women should not be considered as a personal tragedy. As a result of the family and the social determinant to the death of the mother**,** maternal mortality is considered as the tip of the iceberg (1).

According to the Tenth Revision of the International Classification of Diseases (ICD-10) report maternal death is defined as the death of the mother while pregnant or within 42 days after terminating the pregnancy regardless of the site of pregnancy from cause that are aggravated by the pregnancy excluding incidental or accidental cause(2).

According to WHO the major cause of maternal death includes severe bleeding, infection, high blood pressure during pregnancy and child birth, general complication from delivery and unsafe abortion. These problem found to be higher among those mothers who hadn't case of using the basic professional maternal health care services. ANC and skilled birth attendant are basic maternal health care that would impact maternal mortality. This fact also includes factors that prevent mother from seeking care during pregnancy and child birth which includes; poverty, distance, lack of information, inadequate services and cultural practices (3).

The 2011 EDHS report showed that MMR in Ethiopia is highest in Africa which were 676 per 100,000 population which wasn't that differ from the previous report in fact even if it wasn't significant it showed a slit increment. The disparities also go in between regions in the country, between well to do and poor and as well as between women living in rural and urban areas. Regarding the service utilization the 2011 EDHS also showed that among the pregnant mothers 34% of them were only used ANC and 10% had their delivery in the health facility, 94% of birth

takes place at home without the assistance of health professionals and more than 5% of the delivery done at home without any forms of assistance and the delivery happens while the mothers were alone in their house (4).

Different studies in the world found that most of the maternal mortality happen as a result of the inadequate utilization of service especially those which believed to have impact on the health of the women during the maternity period includes ANC, institutionally assisted delivery and PNC. The study done 2010 in Ethiopia showed that the inadequate use of this skilled service and the health seeking behaviors of the women during their pregnancy were mostly attributable to the socio-economic inequalities among region which includes level of education & place of residence of the pregnant women, wealth and economic stability and income earning of women in the HHS, occupation and birth order for the women. In order to surpass this inequalities and improve service utilization of primary health care, community based programs were used as the main strategy for insuring primary health care coverage. (5)

Basic maternal health care is a health care services that are given to all pregnant mothers with the principles of being appropriate for use in low resource setting, effective in promoting health and survival of the mother based on firm evidence, focused through targeted assessment and individualized care provision on the most prevalent health issues affecting women during pregnancy. The goal of basic health care of a mother is to maintain healthy child bearing cycle through ensuring health birth outcome. In order to achieve the goal strong focuses will be given to skilled birth attendant from the rest of the care because it will determine the life of both the mother and the newborn. The purpose of the basic cares are prepared in different section which includes health promotion and disease prevention, early detection and management of complication and birth preparedness and complication readiness which are the considered to be the central focus of health extension program. Even though some women might require some specialized services due to some dangerous complications, most of them needs care services essential for both the mother and the newborn are included in the basic care (6).

2.1. ANTENATAL CARE

Antenatal care ANC is defined as the care given to pregnant mother in order to produce better birth outcome by reducing complication during pregnancy, labour and through neonatal period. The prime purpose of ANC is to care for pregnant mother that will assure skilled birth attendant by

trained health professionals. There is strong evidence which suggested that women who have been attending their ANC follow up will experience lower rate of maternal mortality (7).

Essential interventions in ANC according to WHO includes; identification and management of obstetric complication such as eclampsia, tetanus toxoid immunization, intermittent preventive treatment of malaria during pregnancy and identification and management of infection including HIV, syphilis and other sexually transmitted infection (STI). This articles also suggested that ANC could also be considered as an opportunity for promoting skilled attendance at birth and creating healthy behaviors on breastfeeding, early postnatal care and family planning. ANC can also be considered as a means of building links between the family and health system. For the mother to receive the above care and build strong relation with the health system, she needs to have four antenatal visits during her pregnancy which will lead to better birth outcome (8).

2.2. SKILLED ATTENDANT

Skilled birth attendant is defines as "trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns. Beside to their skill in attending birth, these health professionals should be motivated and located in the right place at the right time and also they need to be supported by appropriate policies, essential supplies and working under appropriate regulatory frame work(9).

2.3. POSTENATAL CARE

Postpartum care is a care given to both the mother and the newborn for early detection and management of complication following child birth. During PNC equal attention will be given for both the mother and new born. Main activities done during the postpartum visits includes observing physical status, advise and support on breast feeding, advising on family planning and health education on weaning and food preparation (10).

2.4. SOCIO- DEMOGRAPHIC DETERMINANT OF MATERNAL CARE

In the majority of the important reasons for not seeking emergency obstetric care are found to be demand factors which functions at the individual, household and community level. Some of the barriers to demand for health care includes lack of knowledge of the provider, long and slow travel

to the facility, long working hours of both the care giver and provider, asymmetric control over HHs resources, reluctance to seek for care of a women and community resistance to the use of modern medical care during pregnancy. Socio-economic factors will play a great role at the individual level in affecting demand for health care. Cultural and religious factor affect the demand at HHs and community level. In many cultures men were invariably given preference to access health care over women and women were restricted to seek for care outside of home for themselves and their children on the top of that men were the one to make decision regarding care seeking for men (11).

Beside to the socio economic factors, their inequalities on the social as well as the economic aspect of the society play a major role in the poor utilization of the basic maternal health care service especially among women who emerged from a poor family. A study done in the 6 region of SSA including Ethiopia, found that those mother who came from the wealthier family tends to utilize more basic maternal services compared to the poorest, the impact of this inequalities on the utilization of service worse off in the countries with the higher rate of maternal mortality. Some of the factors that plays the major role in the inequalities includes ability to pay (affordability), availability of services, distance and problem of transportation, lack of knowledge and cultural factors. (12)

A metal analysis study done on the studies that has been done in developing countries including Africa in 2010 found that women's household wealth, educational attainment and decision making power are strongly associated with the use of maternal health care services and maternal survival by considering antenatal care and skilled birth attendant among other as indicator variable. It showed that the odds among the 20% poorest compared to the 20% richest women are 84% and 95% lower for the use of the service. Women who have completed primary education are almost five times more likely to have had a skilled birth attendant at delivery (pooled-OR: 4.89, 95% CI 4.34–5.52) than less educated women. Similarly, women with the maximum as compared to the minimum empowerment score are, respectively, 1.52 (95% CI 1.37–1.66) and 1.31 (95% CI 1.11–1.54) times significantly more likely to have attended four or more antenatal care visits and have had a skilled birth attendant (13).

Another study in the same year 2010, indicated that the majority of both maternal and child death occurs as a result of poor health, nutrition and care for the mother during pregnancy and born the

newborn as well. It stated that two third of the 8 million infant death happen as a result of poor maternal health and hygiene, inadequate care, inefficient management of delivery and lack access of essential care for both the mother and the newborn. This study also consider delayed treatment as the central factors that determine the pregnancy outcome. Delayed for treatment is the result of many factors including; lack of information and adequate knowledge about the danger signals during pregnancy and labor, out of reach of the health facilities and inadequate skilled attendant. These three factor is defined as illness related behavior. This study consider deliveries attended by skilled health personnel is the indicators for measuring the improvement in maternal health via reducing MMR (14).

2.5. COMMUNITY BASED INNOVATIVE PROGRAM

Our country Ethiopia adopted primary health care (PHC) during the late 1970's but the principle of PHC of the Alem-Ata declaration was not full realized until the launching of health sector development program (HSDP) with different implementation phase. Due to the challenge observed in the first phase, the government develop a community based health care delivery system known as health extension program which was started in the second phase but fully implemented in the later phase of III and IV. With this strategy universal PHC coverage across the country despite the disparity between regions can be assumed (15).

In order to improve the progress towards the millennium development goal on maternal health and the low maternal health care utilization, the government consider leveraging HEP which is an efficient and effective strategy with the aim of improving the quality to and access for basic health care as a means of the health facility outreach health services by the means of transferring health knowledge and skill to the households by giving special focus to mothers and children. This program is considered as the first point of contact of the community in the health system with the objective of delivering the 16 health packages which could be categorized as preventive, promotive and curative health service packages (16).

This program will stand in between the community and the health center as a result it will bridge the gap between health facilities and the community. This program has three line of site of implementation which would help to get the different segment of the community includes household, schools and youth center. The HEW is expected to spend 75% of their effort on visiting the families at homes and perform outreach activities to the community in their remaining effort,

they provide service in the health post including immunization, family planning and also HEW are trained to respond to the community demand for strong basic curative service like providing first aids, intestinal parasite thought deworming, nutritional status screening of both the pregnant and lactating mother and under 5 children and to refer cases to the nearest health center whenever there is complication. According to this program, those individuals who received training on the health packages of the program and implement 75% of them in their house, they will considered as model household and will be certified by woreda health office. In addition, HEW are expected to integrate volunteers of the different stakeholders for working together in order to achieve their goal in creating healthy life style in the community (17).

According to FMoH of Ethiopia urban health extension program implementation manual, the main focus of the program is prevention of disease and health promotion by creating knowledge and skill in the community by the means of health education and home based supportive supervision. The program will be carried out by trained diploma nurses. After deployment one HEW are responsible for 500 HHs on any issues related with health. It is assumed that once the HEW train 50% of these HHs, the knowledge as well as the skill will be transferred to the rest of the community through diffusion. Due to the adequate nature of health facility, the urban section of the program are scoped only on prevention and some promotion services (18)

A world report showed that Ethiopia is getting impressive triumph in extending affordable primary health care service across the country which are attributable to the HEP. Since the program has got the central focus on the community, it enables the success of raising public fund to the health care by 43% and coverage of care by private facilities to be grown from 70% to 98%. The main success areas of the program in the report includes prevention of communicable disease, family planning and effective community participation and integration of different voluntary community worker in planning and implementation of health care (19).

A study done in 2010 on the maternal healthcare seeking behavior found that the spurious contribution of health extension program on the four maternal health care utilization including ANC, DAHP, PNC and TT vaccine looks statistically significant ($p<.05$, 0.01 & 0.1 respectively) without the control of the effect of socio-demographic factors. After controlling for the effect of the socio-demographic, logistic regression model was used to see the effect of exposure to health extension program to the service utilization. And the result still found to be significantly associated

with that the number of visits by HEW, the prevalence of model families and the number of visits by vCHW were strongly associated with ANC and assisted delivery by health professionals but little effect was observed on the postpartum care (20).

The success story of health extension program paved the way for its adoption to the urban setting. In Addis Ababa, HEP was implemented since 2010 which is around 5 years. Unlike the rural, the urban aspect of the program give due emphasis to improving access and utilization of basic health care service. In the rural HEW were expected to provide some outreach clinical services VCT, FP, ANC, clean and safe normal delivery since transportation and distance to the facilities is determinant factors, but in the urban setting, HEW are not advised to give any clinical services in the outreach instead they are expected to build a bridge by using the referral system which result the increase the access and use of basic health care especially for maternal and child basic health care. This study is intended to assess the effect this program in the urban setting on the basic maternal health care utilization (21).

3. OBJECTIVES

General objectives:

To assess the contribution of community based innovative programs and socio-economic factors on basic maternal health care utilization among pregnant mothers, 2016.

Specific objectives: To

1. Assess utilization of ANC, SBA and PNC among study participant with in the last two years prior to the study, 2016
2. Assess the contribution of HEP on the utilization of maternal health care service among pregnant mother, 2016
3. Assess the contribution of female development army or1 to 5 grouping the utilization of maternal health care service among pregnant mothers, 2016

4. METHODS

4.1.Study setting

This study was conducted in Arada sub city which was selected out random from the ten sub city of Addis Ababa. Arada is Located at the south of Gulele, north to Lideta, east of Addis ketema and west of yeka. Arada sub city has the population of 259,676 of whom 52% are male and 48%are females. The total number of HHs in the sub city estimated to be 63,336 and around 80 HEW are assigned for each 500 HHs. There are 9 health centers in the sub city and there were 6,051 expected pregnancies and one case of pregnancy related death recorded in the annual report of the sub city health office.

4.2. Study design and study period

A descriptive quantitative community based cross-sectional study design was employed in order to assess the contribution of community based innovative program and socio economic factors on basic maternal health care utilization. This study was conducted in between September and May 2015.

4.3. Source population

Those women who were the resident of Addis Ababa and had a live birth within two years prior to the study were considered to be the source population for this study.

4.4.Study population

This study considered those women who had their live births with in the last two years and who were resident of Arada sub city during this study period as the study population.

4.5. Inclusion and exclusion criteria

4.5.1. Inclusion criteria

The criteria used for including study participant includes those mothers who were residence of Arada sub city and had live birth within the past two years and also had the physical and mental ability to respond to the interview

4.5.2. Exclusion criteria

The criteria used for exclusions from the study includes those Women who were not resident of Arada sub city and didn't have live birth in the past two years or had live birth in more than the study period and were resident in outside of Arada sub city under no circumstance were never included in the study.

4.6. Sample size determination

A single population proportion formula was used for the first objectives identify mother who had live birth with in the last two years prior to the study with the assumption of 95% CI, significance level of 0.05, estimated proportion of ANC, SAB & PNC of Addis Ababa using the 2011 EDHS is 93.6%, 83.9% & 47.7, 4% margin of error and 10% non-response rate.

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

By using the above formula, the sample size for each outcome variable was calculated and found that 134 for ANC, 324 for SAB and 599 for PNC, for the other objectives: factors affecting MHC utilization, sample size was calculated using two population proportion formula

$$n_1 = \frac{Z\alpha_{/2}\sqrt{(1+1/r)\,p(1-p)} - Z_\beta\sqrt{P1(1-P1) + [P2(1-P2)/r\}}^2}{(P1-P2)2}$$

Where, $Z_{\alpha/2}$: 95% confidence level Z_β: power

P1: the probability of event in the unexposed, P2: the probability of event in the exposed

r: ratio of exposed to unexposed OR: 1.5

It was calculated using statcalc sample size and power calculation for descriptive study of Epi info version 7, assumed to detect relative difference (OR) of 1.5

Factors	Power (80%)	95% CI	P_1	r	OR	n_1	n_{total}
Wealth	0.84	1.96	52.3	1	1.5	383	421
Education	0.84	1.96	74	1	1.5	295	325
Home visits by HEW	0.84	1.96	67.2	1	1.5	338	372
Model family	0.84	1.96	29.8	1	1.5	322	354
Home visits by FDA	0.84	1.96	52.2	1	1.5	383	421

*n_{total} = total sample size found after adding the 10% non-response rate

So decision was made based on the comparison between the first specific objective (599) and second and third factors objectives (421). Finally due to the issue of representativeness a sample size of 599 was used in the study. .

4.7.Sampling procedure

This study was done by randomly selecting HHs with pregnant mothers from the selected woredas of Arada sub city. Each HHs with the inclusion criteria were identified using the sampling frame of MHC record logs of HEWs.

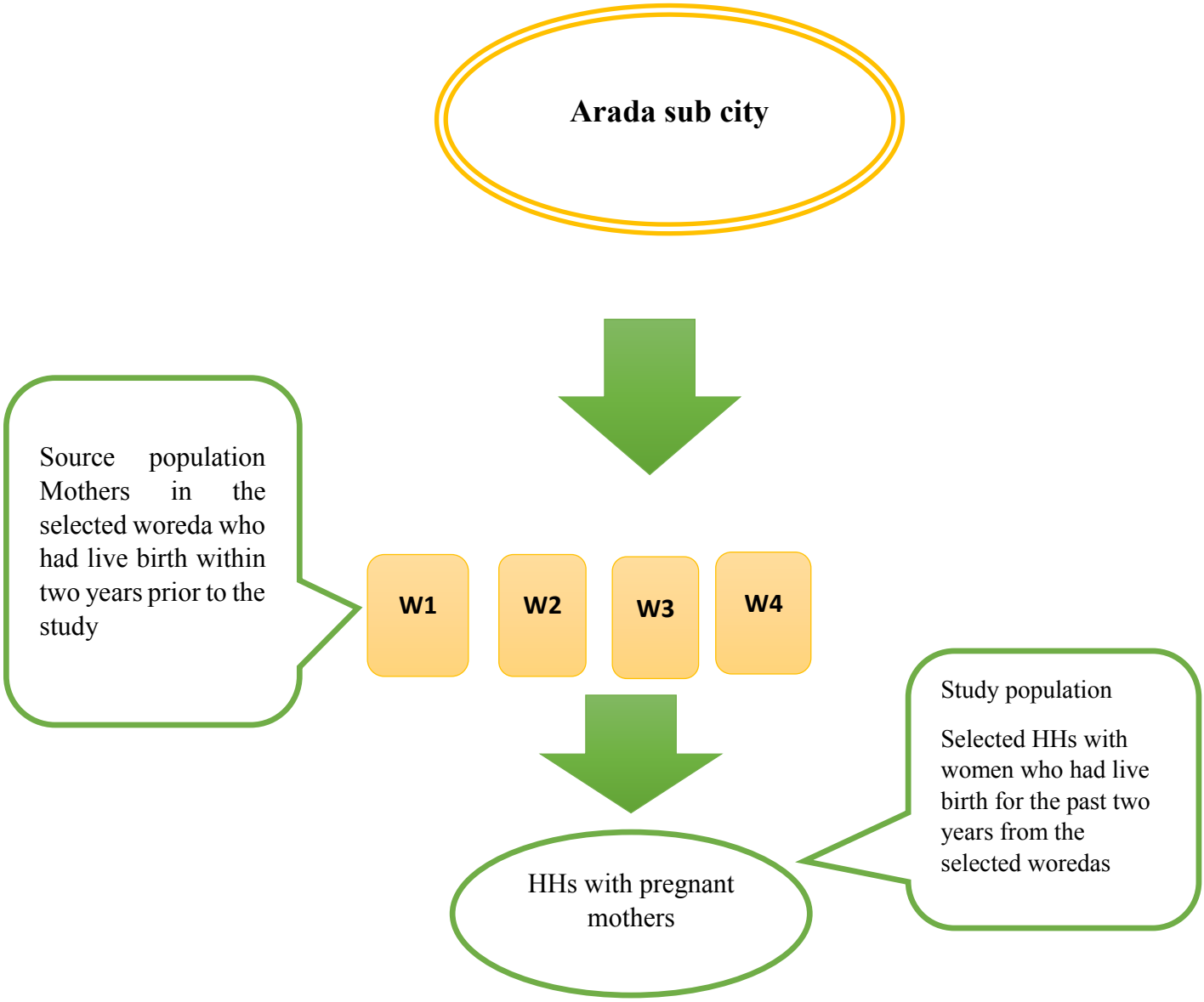


Fig1: Schematic illustration of sampling procedure

4.8.Study variables

Table 1 description and measurement of variables included in the model used in the study

Variables	Description	Measurements
Dependent variables		
ANC	Women's who had their pregnancy in the past two years prior to the study and had ANC visits	For each indicator, yes response were coded as 1 otherwise 0
SBA	Women who had their delivery through skilled assistance within the study period	
PNC	Women's who continue their follow up after delivering their baby	
Level -1 predictor variables		
Age at first marriage	The age of the mothers (respondents) during their first marriage	The age number when they were married for the first time
Birth order	Birth order of women to the recent birth/index birth	The birth orders were recorded numerically
Educations	The highest level of education attained by both the mother and their partners	For each variables, 5 categories were prepared: illiterate, can read and write, primary, secondary & higher
Monthly income	The average monthly income earning of both mothers and their partners	For both categories income was recorded as numerically
Wealth quantile	Wealth quantiles were done based on HHs consumption by considering assets/utilities and giving their weights and calculate their score	Wealth score then categorized in to three groups based on quantile division
Knowledge on basic MHC	Knowledge of mothers on basic maternal health care and service given at this critical times	Each knowledge questions were categorized ad yes and no and recoded in to 1 and 0
Level-2 predictor variables		
Basic task of HEP		
Visits by HEW during pregnancy	Women's identified, visited and advised by HEW at home during their maternity period	For each visits questions were categorized as yes and no and coded as 1 and 0
Health education on MHC	Women's who had received a model training on MHC from HEW	For each visits questions were categorized as yes and no and coded as 1 and 0
Promotion of basic MHC services by HEW	Women's who have received promotion on the basic MHC from HEW	For each visits questions were categorized as yes and no and coded as 1 and 0
Birth preparedness and complication readiness at home	Women's awered, advised and referred by HEW on birth preparedness and complication readiness	For each visits questions were categorized as yes and no and coded as 1 and 0
Involvement in FDA	Women who involved in FDA during the two years period	For each visits questions were categorized as yes and no and coded as 1 and 0
Member of 1 to 5 grouping	Women's' who were members of female centered 1 to 5 grouping	For each visits questions were categorized as yes and no and coded as 1 and 0

4.9. Data collection procedures

Structured interviews based questionnaire was used as instrument of data collection during the interview which was adopted from two different studies, study done in 2010([14]) and 2013([31]) and was divided in to five section developed as per the study objectives. First section concerned with demography, second on knowledge of maternal health care, section3 regarding knowledge on HEP, section4 on essential maternal health care use and section5 concerning the effect of HEP on MHC utilization. On average 8 questions were developed for each outcome variable. Nurses who were working in the health center were selected for data collection and six nurses were required, one for each district. In addition to the interview, important document were reviewed Beside to the interview, some important document were reviewed for the purpose of validation and clarification which includes office based information regarding the program performance report, working standard manual that can assist the exploration of some fact and used for comparison with the primary data. These document includes

- Registration of pregnant mother with in the past two years who have identified, advised and referred by HEW
- Registers containing those who attained their delivery in the health facility as a result of the advice and the referral given by HEW
- Registers which contains the list of mothers who were advised, visited and referred by HEW for their PNC.

Table 2: summary of the document reviewed during the study – main source on the three basic care ANC, FBD & PNC were reports, daily registration log and referral registration book)

Document reviewed/registrations	Number of document reviewed	Number of client totally registered	Number of respondent in the registry	Missed in the document
ANC	2	2280	461	138
FBD	3	1920	359	240
PNC	2	2960	509	90

1=document daily registration, 2=identification and tracking formatting tools, 3=outreach service delivery

4.10. Data quality management

Training was given regarding every questions and strategy of the study to data collectors before starting field work. A pretest was done on around 10% of HHs to assess the accuracy of questions and make appropriate corrections which were not included in the analysis. After entering in to Stata version 13, data clearance was done by the investigator and questionnaire with a serious missing value were completely discard from the study. During encoding reliability test was run and it was found that the alpha value was almost equal to 0.7 which suggested that the entire data set had optimal level of reliability

4.11. Data analysis procedure

Univariate analysis was done for the both dependent and independent variables and were displayed using table and charts (both bar and pie chart were used). Logistic regression were used in order to see the association between each outcome variable had with the independent variable. The contribution of community based innovative programs on utilization of the basic MHC service across the different wealth quantiles were evaluated by controlling for other variables in the multivariate analysis.

4.12. Operational definition

ANC by HEP = is the proportion of mothers who visited the health center more than twice during their antenatal period and have been identified visited and advised by HEW.

SAB by HEP = mothers who were assisted by trained health professionals (midwife, trained nurse or doctor) and have been identified, advised and referred by HEW

PNC by HEP = proportion of mothers who visited health center with in the first weeks after delivery and have been identified, visited and referred by HEW

Model household = proportion of mother who have received 96 hrs training on the 16 packages of HEP and performed the 75% of the package in their house and certified as such by the woreda health office.

Home visits = the number of mother who were formally visited by HEW using checklist within the six month period during the pregnancy and 42 days after the pregnancy.

Community based innovative programs = program with a new creative way to accelerate service provision in our health care system

In addition, the separate monthly income of the respondent and their partners total average was taken and categorized in to five quintiles which was similar for wealth score as well and each quintile was given its own label 1st quintile – lowest, 2nd quintile – second, 3rd -middle, 4th quintile – fourth and 5th quintile –highest this division was made based on the model used in the 2011 EDHS. Questions related with MHC and HEP were summarized separately and given a score by adding 0 and 1 for the dichotomous no vs yes and mean value was calculated, among those who had score more than the mean it was coded as "good knowledge" and those lower from the mean as "poor knowledge". And also the total effect of the program was separately summarized for the effect of the program that brought through the knowledge change and the practical change it brought on health seeking behavior and total score were developed those who had responded 75% of the question as yes, will be coded as "stronger" and the rest who said no will take "weaker".

4.13. Dissemination of study results

The result of this research study were disseminated to Addis Ababa health bureau, Arada sub city health office and to Addis Ababa university school of public health

4.14. Ethical consideration

Approval from Addis Ababa University, School of Public health IRB were obtained and a letter of cooperation was taken from the School of Public Health to Arada sub city health office and the woreda health offices. An informed verbal consent was obtained from all the study participants. The participants were informed of their right to withdraw from the interview any time they like. Besides this all the information collected from the study subjects were held safely and the information were handled confidentially and data's were used for the research purpose only. Information were given to all participants about the objective, the contents of the study. Participant were informed that they will not receive any benefit in the form of payment nor do they will experience any danger as a result of their participation.

.

5. Result

5.1. Socio-demographic characteristics of study population

In this study from the required sample population, 589 women who have their pregnancy within the past two years prior to the study period was interviewed which make the response rate of 98.3%. From the total mothers interviewed 31% of them were from a female headed HHs with the mean age of 22 years at first marriage. More than 90% of the mothers in the interview were currently in formal marital union whereas 7% of the rest were out of any form of union or marriage. When we see education, it was found that the higher level of educational status were observed in the partners than the mothers, 23% of partners vs 15% of mothers had diploma and above. Occupation status of the respondents indicate that the highest payable job were held by the partners, 19% professionals & 33% skilled labor when compared to the mothers 13% and 20% respectively. 21.8% and 54.6% of the respondent where Oromo and Amhara. In the religion category 55% were member of orthodox, 29% Muslim and 15.7% were from protestant religion. (See table 3)

Table 3: socio demographic characteristics of both the interviewed mother and their partners (n=599)

Variables	Labels	Frequency	Percent (%)
Current marital status	Married	545	91
	divorced	25	4
	separated	6	1
	Widowed	23	4
Education of the partners	Illiterate	10	2
	Can read and write	36	6
	primary	128	21
	Secondary	290	48
	Diploma and above	135	23
Education of the respondents			
	Illiterate	46	8
	Can read and write	42	7
	primary	220	37
	Secondary	204	34
	Diploma and above	87	15
Occupation of their partners			
	Professionals	116	19
	Sales and services	146	24
	Skilled labor	199	33
	Daily labor	68	11
	Unemployed	48	8
	Retired	22	4
Occupation of the respondent	Professionals	75	13
	Sales and services	120	20
	Skilled labor	85	14
	Daily labor	99	17
	Unemployed	95	16
	Housewife	125	21
Ethnicity	Tigray	24	4
	Gurage	130	22
	other	11	2

5.2. Economic characteristics

The respondent standard of living were considered by using consumption though commodities owned and income. From assets the most important were, source of drinking water, shower, types of latrine, number of rooms used only for sleeping and cooking places plus in order to understand their saving respondents were also asked a bank account. 57% and 34% of the respondents either used water source piped in to their compound or outside of their compound like bono or buying from their neighbors respectively, but very few HHs with highest living standard 9% had indoor water plumbing facility. 58% of respondents uses private unimproved types of latrine and only few with the highest income were the ones which own private improved types of latrine (7%), but the majority of the HHs, 84% & 44% lacks any kind of both showering and cooking facility respectively. (See table 4)

Table 4: commodities owned by HHs with mothers who were pregnant in the last two years, 2016 (n=599)

Independent Variables	Labels	Frequency	Percent
Types of latrine used	Improved latrine	41	7
	Unimproved private latrine	161	27
	Unimproved communal latrine	347	58
	Public latrine	50	8
Cooking facility used	Have a specified kitchen	67	11
	Use space outside of the living house	269	45
	No kitchen	263	44
Bank account	Yes	545	91
	No	54	9

Average monthly income for both the partners and respondent where summarized through five quantile distribution. For further understanding both the assets utility ownership and average HHs monthly income were summarized based on their respective categories. (See table 4)

For the case of table 5, we can see the summary score for income and we can see the majority of the respondent like more than 40% and 20% of respondents were in the first and 2nd quintile monthly income category. This income had the range of 300 to 17600 with mean income of 4193 within SD $\pm$ 2305 and only 8.6% of respondents were in the highest income quintile. When we see the HHs wealth score, it has closer distribution than income. But still the majority of respondents were in the 1st (33%) and 2nd (21%) wealth quintile score and after the 3rd quintile the distribution

looks closer than the average income. 11% of respondents were in the highest wealth score quintile which shows more improvement compared to income.

Table 5, both the average HHs monthly income earnings and HHs wealth quintile of pregnant mothers, 2016 (n=599)

Economic variables	Frequency	Percent (%)
Average HH income earnings quantiles		
Lowest	250	41.7
Second	126	21
Middle	96	16
Fourth	76	12.7
Highest	51	8.6
Total	599	100
HHs utility summary score		
Lowest	199	33.2
Second	128	21.4
Middle	108	18
Fourth	100	16.7
Highest	64	10.7
Total	599	100

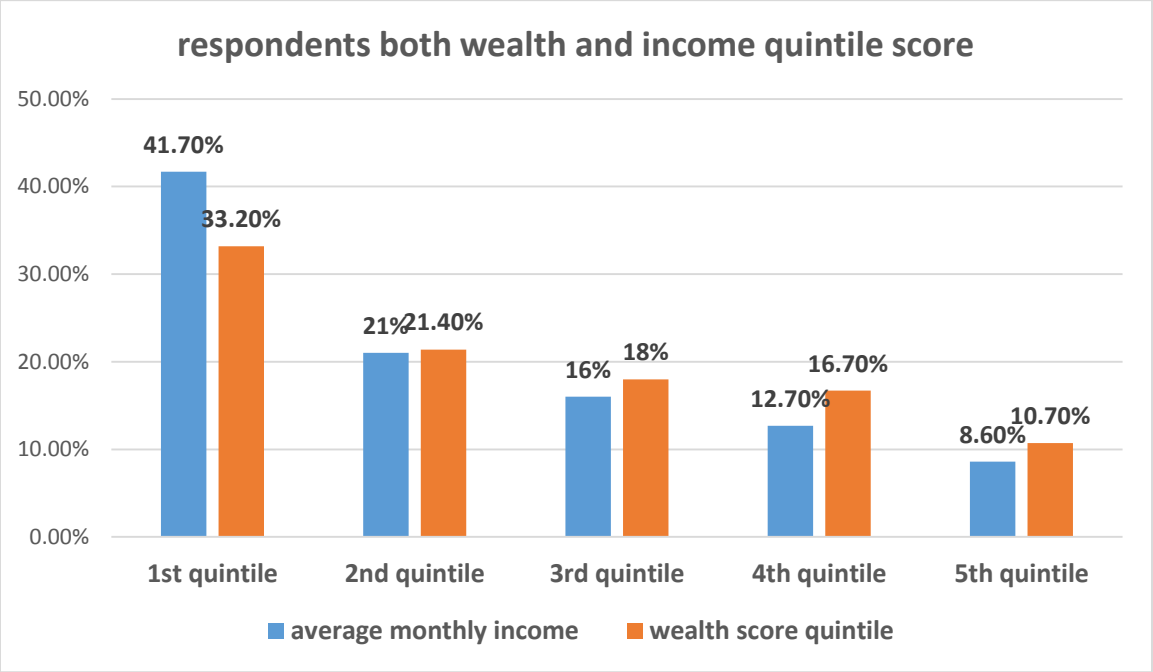


Fig2: the distribution of pregnant mothers across the average monthly income earning and wealth score quintile category of the HHs, 2016

5.3. Information related with MHC and HEP

In this study, 86% of them had information regarding maternal health care and their major source of information were health center (37%) and HEW (38%). For measuring their awareness respondents were asked whether they were aware of services given during maternity and 91% of respondent were awered, and 96% of these were able to provide more than two services known to be provided during maternity period. Regarding ANC, 89% and 6% of mother believed that women should visits health facility for four and three times during their pregnancy respectively and also all of the respondent think that having ANC visits will improve birth outcome for both the mother and the newborn.

On SBA, all of the respondent agreed that mother should have assisted delivery during birth in order to prevent and manage complications. But 22% of the respondent agreed that TBA's are as skilled as trained health professionals in assisting delivery. In the contrary 99% of them strongly hold a belief that home delivery will exaggerate complication during child birth, so 95% of them recommended that every mother should continue attending skilled care even after birth. Among the respondent 95% of them strongly disagree to the idea that the birth outcome during delivery can only be determined by the physical appearance of the women.

Regarding in the involvement in HEP, 91% of the respondents answered that they have heard about the program 93% of these respondent were able to specifically mention more than two packages of health services included in the program. Home visits (29%) and health education (60%) were the most familiar indoor tasks of HEW during their maternity period. During the interview participant were asked whether HEP can bring behavioral change on MHC and 82% say yes and 12% responded no. from these participant 67% of the women happens to receive health education on maternal health care while they were pregnant. (See table 6)

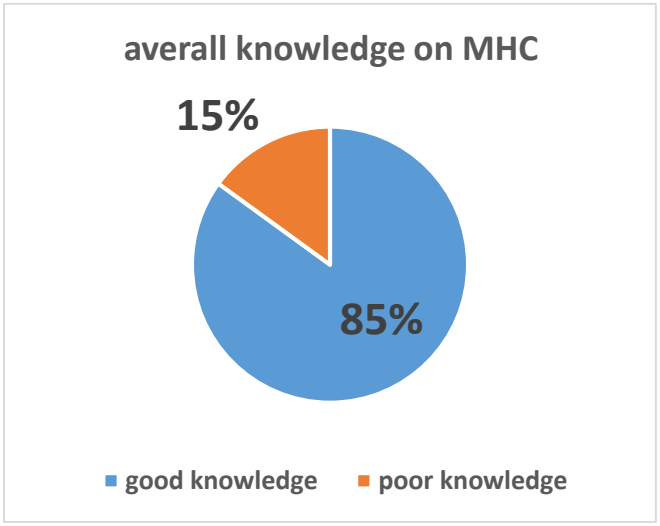
Table 6: information regarding maternal health care services and community based innovative program (HEP) among the respondent (pregnant mothers within 2 yrs prior to the study), 2016 (n=599)

Independent Variables	Labels	Frequency	Percent (%)
Provides more than two answers			
	Yes	463	77
	No	20	3
ANC will improve birth outcome			
	Yes	496	99
	no	3	1
Assisted delivery will reduce complication			
	Yes	597	99
	no	2	1
Home delivery will exaggerate complication			
	Yes	593	99
	no	6	1
Information on PNC			
	Yes	547	91
	No	52	9
Can provide more than two packages			
	Yes	511	85
	No	36	6
Task of HEW being familiar with			
	Health education	308	51
	Home visits	172	39
	Referral	14	2
	Other outreach services	52	9
HEP bring change to MHC seeking			
	Yes	491	82
	No	108	18
Health education on MHC from HEW			
	Yes	407	68
	No	192	32

In table 7, the overall knowledge summery score showed that among the total respondent 85% and 82% of the respondent over all knowledge were under the category of good knowledge on MHC and HEP respectively. From their source of information we can see that both HEW and health center played the major role in the dissemination of information related with MHC among respondent in the study group. The table 5 can also support this find that among the respondent who were familiar with MHC (89%) 77% were able to provide more than two answers on services given to the mothers in the HF during their maternity plus 86% of them can also mention two packages of HEP. So we can say that more than 80 % of the respondent had a knowledge above from the average on matters related with MCH especially through the use of HEP. (See table 7)

Table 7: summery of knowledge on the basic maternal health care among pregnant mothers, 2016 (n=599)

Variables	Category	Frequency	Percent (%)
Summary of the knowledge on MHC from any kind of source	Good	512	85
	Bad	87	15
Summary of knowledge on HEP	Good	489	82
	Bad	110	18



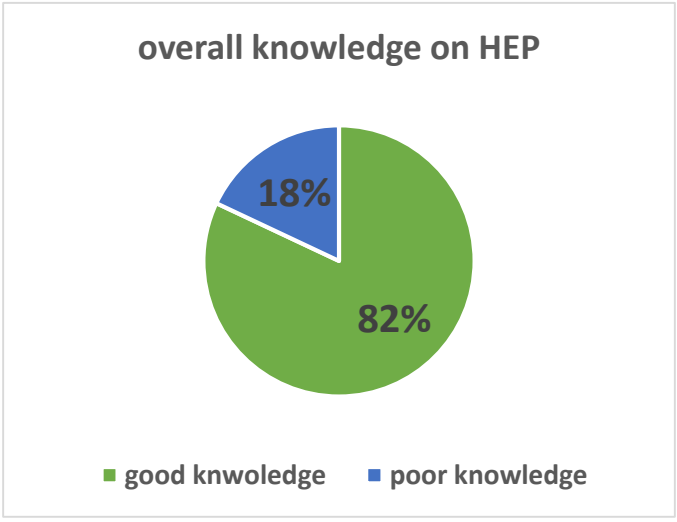


Fig 3: overall knowledge on MHC and HEP among pregnant mother, 2016

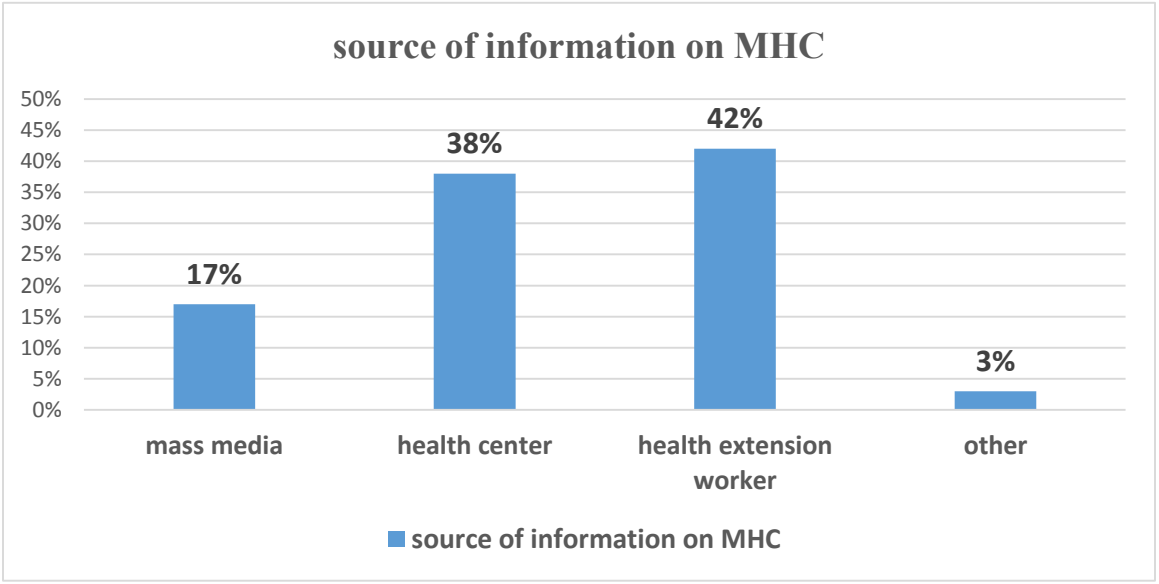


Fig 4: contribution of different source of information on knowledge on MHC among pregnant mother, 2016

5.4. Maternal Health care utilization

During the interview, 90% of the respondent had a planned pregnancy in which 95% of them mad equal decision with their partners while 10% of the rest think that their pregnancy was unintentional. The study also found that, 96% of mother had their ANC visits in their last pregnancy with 91% of them had four ANC visits. 74% and 24% started attending their first visits during the first and second trimester respectively. The average time it took to reach to the HF was 12 minutes.

During their visits, all respondent agreed that they have received advice on the danger signs during pregnancy from the HP. 98% of the respondent delivered their child in the health facility by the assistance of skilled professionals, among the 2% some of the main reason for having home delivery were the sudden nature of the labor (46%) and the perceived quality of service given in HF (36%).

After having the baby, 96% of them respondent continue attending their PNC visits while 4% of the rest did not. This study also found that, 73% starting their PNC visits within the 24 hrs and 29% started with the three days after birth and the majority of them (86%) had their PNC in the nearby HC, where as 8% in gov't hospitals and 6% of the rest in the private hospital. See table 8.

Table 8: MHC service (ANC, SBA and PNC) utilization among mothers, 2016 (n=599)

Variables	Labels	Frequency	Percent (%)
Reasons for no ANC visits			
	Lack of info on the number of visits needed during pregnancy	9	41
	Distance from the health center	4	18
	Perceived quality of services given in the nearby HF	5	23
	other	4	18
Danger sign of pregnancy advice from HF	Yes	577	100
	No	0	0
Place of ANC follow up			
	Health center	475	82
	Gov't hospital	40	7
	Clinic/private hospital	62	11
Status of the last delivery	Both the mother the child were healthy	401	67
	Complication were properly managed due to assisted delivery	139	23
	Both the child and the mother suffered from serious complication due to home delivery	10	2
	Don't remember	49	8
Time for the first PNC visit	With three days	116	20
	Within 7 days	14	2
	After 45 days	22	4

The basic maternal health care indicator for this study were also cross tabulated with the overall knowledge summaries to see percent distribution of the basic maternal health care across knowledge on MHC.

In table 9, we can see how the selected independent variable varies across the outcome variable, even though the numbers look very small due to the fact that the societies in Addis Ababa had a batter maternal and child health care utilization compared to the rest of the regions. When we compared to their status of knowledge on the overall knowledge score on MHC, the percentage distribution of the three basic maternal health care service users across the good knowledge was much higher compared to respondent with poor overall knowledge score (82% vs 13% for ANC, 84% vs14% for SBA and 78% vs 14% for PNC). The distribution also had similar pattern for the

case of the overall knowledge on HEP which was, 79%, 80%& 75% among the ANC, SBA and PNC users were having a good knowledge score on HEP vs 15%, 18% & 17% among respondent under the overall poor knowledge score respectively.(see table 9)

Table 9: percent distribution of the basic maternal health care use according to the knowledge summaries and HHs average monthly income, 2016 (n=599)

Independent variables	Basic maternal health care services								
	ANC			Place of delivery			PNC		
	Yes	No	Total	Home	HF	Total	Yes	No	Total
Summary of knowledge on MHC from any source									
Good knowledge	81.8	3.7	85.5	1.5	84	85.5	77.8	7.7	85.5
Poor knowledge	12.5	2	14.5	0.3	14.2	14.5	13.7	0.8	14.5
Total	94.3	5.7	100	1.8	98.2	100	81.5	6.5	100
Summary of knowledge on HEP in relation to MHC									
Good knowledge	79	2.7	81.6	1.5	80	81.5	75	6.7	81.7
Poor knowledge	15.4	3	18.4	0.3	18.2	18.5	16.5	1.8	18.3
Total	5.7	94.3	100	1.8	98.2	100	91.5	8.5	100

5.5. effect of community based innovative program on MHC utilization

Mothers were asked their involvement in HEP during their pregnancy or after wards. 77% of these respondent had previous involvement during their maternity and 83% of these received model training from HEW on the 16 health packages specifically on MCHC while they were pregnant or had their baby. Among the respondent 86% of them were visited by HEW while they were pregnant.

During home visits by HEW, 91% of those who were visited were advised on the danger sign during pregnancy, among these more than 95% of them were able to mention at least two danger that will happens during pregnancy. Respondents were for the first time visited by HW on average when they were on their 3 month gestation. More than 60% of the respondent in the study were visited a month and less frequently by HEW when they were pregnant.

During HEW home visits, 88% of the respondent receive information regarding MHC by the mean of promotion and HEW also gave advice to 69% of the respondent on the importance of institutional delivery. 79% of respondents confirmed that they received birth preparation and complication readiness advice from HEW. Among the preparation were, checking their ANC

follow up (27%), advising on the importance of skilled service on the management of complication during pregnancy and delivery (26%), explaining the importance of institutional delivery (39%) and mentioning services that are only be given for both the mother and children in the HF. 60% of the respondent had the experience of cooperating with HEW in the identification of pregnant and prevention of home delivery with HEW within the two years prior to the study. None of these respondent have encountered home delivery in their locality.

Among respondent who had institutional delivery, we asked the respondent the contribution of HEP and 69% said that they were advised on the importance of ID by HEW in their antenatal period. 94% of respondent didn't encounter home delivery in their locality and 69 of these participant agreed that this change occurs might be as a result of the change in the health seeking among mothers employed by HEW, respondents were also asked the reasons for those with home delivery, 80% of them responded that, it would be because of the inadequate involvement in HEP. After delivery 65% of respondents were visited by HEW and 52% of them were visited every weeks, 24% and 23% in every month while 69% of these were advised on maternal and child health care. On average every respondent have 5 model HHs in their locality that may facilitate health living environment. (See table 10).

Table 10: the effect of community based innovative program on the basic maternal health care utilization (ANC, SBA & PNC) (n=599)

Variables	Labels	Frequency	Percent (%)
Frequency of visits			
	Once a week	88	19
	Twice a week	113	24
	Every month	107	23
	Every three month	107	23
	Four month and above	54	12
Respondent can provide more than two ans	Yes	425	95
	No	24	5
What preparation done by HEW	Checked the ANC follow up schedule during their visits	124	32
	Advising on the importance of ID on the management of complications during preg or birth	111	29
	Explained the importance of ID for both the baby and the mother	128	33
	Aware the service that will only be given in HF during maternity period	26	7
Visits by HEW during PNC period	Yes	451	75
	No	148	25
Frequency of visits by HEW	Within the first week	238	52
	Within 15 days	126	28
	After a month	89	20
Advice on maternal and child health care	Yes	394	88
	No	56	12

In addition to the innovative program, there are other community based structures build basing the program and their relative effect on the utilization of MHC were assessed. Including FDA (female development army) and 1 to 5 female oriented grouping of HHs. 48% of the respondent were acquainted and socialized with FDA in their locality and 63% of these HHs were visited by FDA during their pregnancy more often than a month. On the other hand 30% of respondent were found to be members of 1 to 5 grouping and 72% of them had a discussion on maternal and child care during their maternity period whereas only 24% actively involved in the identification of home delivery and other matters related with mothers.

For table 11, we can see that the overall effect of the community based program was seen in terms of the knowledge and the practice on MHC utilization and the summary showed that 67% and 32% were under the stronger category in the knowledge and practice summery respectively.

Table 11: A summary of the effect of community based innovative program through knowledge and practice on the utilization of maternal health care services (n=599)

Overall effect score variables	Label	Frequency	Percent (5%)
Effect through knowledge on MHC	Stronger	403	67
	Weaker	196	33
Effect through practice			
	Stronger	191	32
	Weaker	408	68

Data obtained from the document were compared with the interview, and found that among those who had their ANC follow up, 77% of them were found in the document with full info where as 15% were with incomplete information and 8% were not included in the register. From the registered we only found 60% of the respondent who have been followed, advised and referred by HEW for their institutional delivery, the rest of them were not included in the registered. Regarding PNC, among those respondent who had PNC, 70% of them were properly registered (identified, visited, advised and referred by HEW) the rest 30% no information due to failing to register on daily base and incomplete information in the register due to high professional turn over.

Beside to the interview, documents were reviewed regarding basic services given like visiting, health education, advices and counseling plus referring by HEW which were pertinent to the basic MHC. The document provide the evidence that, these services were given during the appropriate time of the maternity period which might suggest that, it had a contribution to the service utilizations of these mothers. (See table 12)

Table 12.The number of service use among mother with a full information by registration of HEW, 2015 & 2016

Outcome variable	Respondent in interviews		Respondent found in the document	
ANC	491	82%	461	77%
FBD	479	80%	359	60%
PNC	443	74%	419	70%

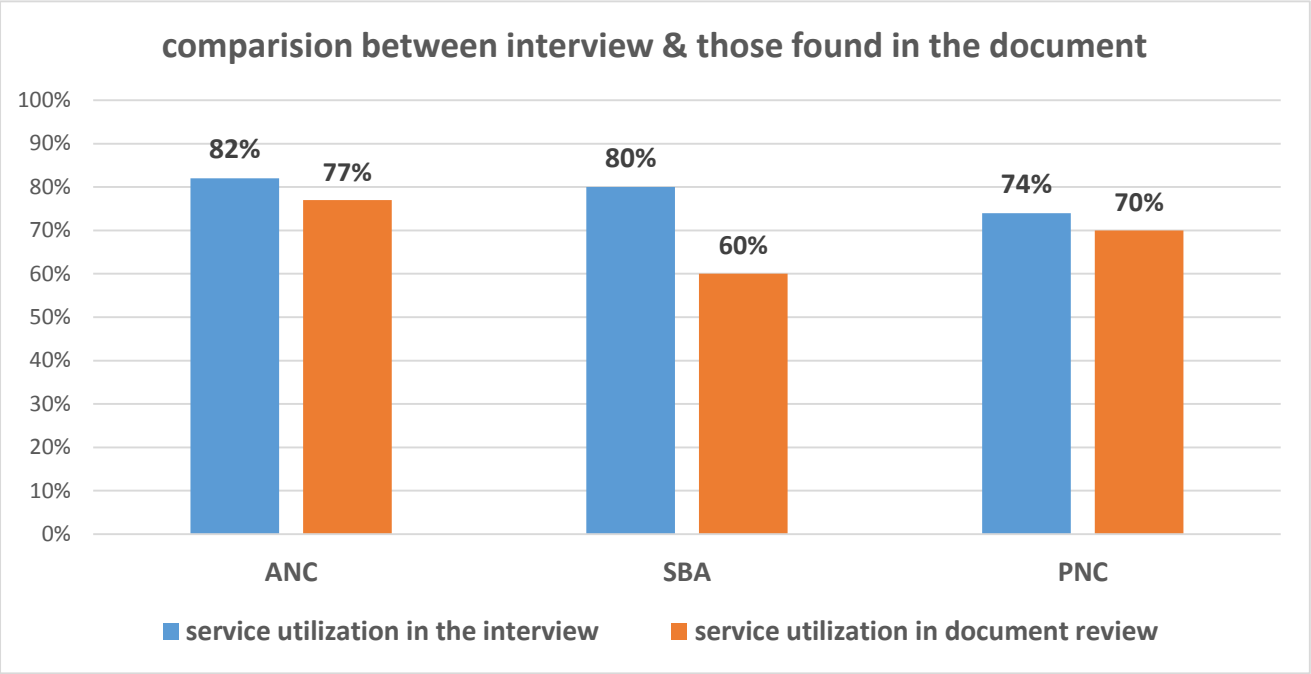


Fig 5: Basic maternal health care utilization comparison between the interview and document review in between 2015 & 2016

5.6.Association between maternal health care utilization and other factors

5.6.1. Basic MHC utilizations and socio-demographic characteristics

The three indicator variable selected for this study was analyzed in relation to other demographic variables to see whether there is association or not. Sex of HHs heads was associated with ANC and PNC, it was found that the odds of attending ANC follow up among mother from the female headed HHs was 1.7 times higher compared with mothers from male headed HHs AOR=1.7 (95% CI (1.2, 3.5). also works for PNC (AOR=3.05, 95% CI (1.35, 6.9) but failed to work for skilled birth attendant (OR= 1.28 95% CI (0.37,4.4). age at first marriage was negatively associated with both ANC and skilled birth attendant but positively with PNC.

The three indicator variables found to have association with some of the occupational category of the partners and respondent respectively, especially with the category of those who engaged in sales and services and skilled labor since they were the ones with the highest average monthly income earning in this study. The odds of attending ANC service were 2.2 times higher for those respondent with the partners who had professional employment compared to the unemployed once (OR=2.2 95% CI (2, 3.7). whereas the odds of continuing using care after birth were 0.12 times higher for respondent who had sales and services business compared to the housewife.

As the HHs average monthly income moves from the lowest quantile to the above score, the more likely for the HHs to access the basic health care services. Compared to the lowest quantile the odds of attending ANC and PNC were AOR=7(95% CI 2.2, 16.8) and AOR=3.8 (95% 2.1, 5.6) times higher for the HHs found in the highest quantile which is on average 2 fold difference were there between the first and third quantile. Table 13 concerned with the wealth score category in terms of quantiles and its relation with the basic maternal health care services. (See table 13)

Table 13, the association with maternal health care service use and HHs average monthly income earning quantiles. (n=599)

Independent variable	The three basic maternal health care services					
HHs monthly income quantile	ANC		SBA		PNC	
	COR	AOR	COR	AOR	COR	AOR
lowest	1	1	1	1	**1**	1
second	**0.9(0.9,1.02)**	**0.4(-0.28, 0.4)**	**0.99(0.89,1.2)**	0.24(0.3,0.5)	0.3(0.1,0.65)	**2.1(0.1, 4.1)**
middle	1.7(1.05,3.4)	1.7(1.2,2.04)	0.2(0.1, 0.51)	**1.2(0.2,2.05)**	0.5(0.2,0.96)	**0.5(0.4,1.4)**
Fourth	3.7(1.3,10.7)	4(3.8,10.2)	**3.5(0.9,7.2)**	0.3(0.2,0.5)	2.7(1.2, 5.9)	1.25(1.2,4.8)
Highest	**1.5(0.7, 3.4)**	7(2.2, 16.8)	2(1.6,3.8)	**0.5(0.1, 2.2)**	3.4(1.2,7.6)	3.8(2.1, 5.6)

*COR crude odd ration *AOR adjusted odd ratio significant at p<0.001

In measuring wealth, considering income may not be sufficient since most respondent prefers not to disclose their income and preference to roundup their earning was observed in many study, so in addition to income other HHs commodities that can show level of expenditure was used for the wealth score. In the case of table 14, when we see the level of significance across the wealth quintiles, ANC use were insignificant among HHs in the fourth and highest wealth quintile score, and the odds of attending ANC among those respondent in the highest quintile was twice that of the fourth quintile. The odds of using institutional delivery was 12 times higher among mothers in highest wealth quintile when we compare it with third quantile which is AOR=1.2 (95% CI 1.03,1.8) vs 0.1 (95% CI 0.04, 0.24) respectively. This increment also seen in the PNC, the odds of mothers who accessed PNC in the highest quantiles was 2.4 times higher than HHs in the lowest quintile score. (See table 14)

Table 14, the association between the three wealth score quantiles with the three basic maternal health care (ANC, PNC& SBA) among HHs. (n=599)

HHs overall wealth score quintile	The three outcome variables					
	ANC		SBA		PNC	
	COR	AOR	COR	AOR	COR	AOR
Lowest	**1**	1	1	1	1	1
2nd second	**0.6(0.3, 1.2)**	**0.1(0.1, 1.3)**	0.2(0.03,0.5)	0.03(0.03,0.6)	**0.06(0.02,1.9)**	**0.19(0.8,1.2)**
3rd middle	**0.8(0.5,1.03)**	**0.3(0.8, 1.4)**	**1.3(0.6,3.7)**	0.1(0.04, 0.24	1.3(0.7, 2.4)	**0.03(-1.4,1.1)**
4th fourth	1.2(1.05,2.1)	1.2(1.04,2.3)	1.7(2.5, 26)	**0.02(-0.02,0.1)**	3.3(1.5,7.5)	2.3(1.5, 7.5)
5th highest	2.9(1.8,4.5)	1.7(1.2, 4.5)	3.4(2.1, 3.6)	1.2(1.03,1.8)	4.5(2.3, 6.7)	2.4(2.2, 5.8)

COR=crude odd, AOR= adjusted odd & significant at P<0.001, category no was taken as a reference

5.7.Maternal health care seeking and service utilization and it associated factors

knowledge had association with the indicator variables and its was found that significantly associated with the utilization of ANC (AOR= 3.56 95% CI (1.96 – 7.5) which mean that the odds of accessing ANC service among those respondent with a better knowledge and information on MHC were 3.5 times higher compared to those with a very poor exposure, by taking in to consideration the best source of information was HEW which might suggest the contribution of HEP on the creation of knowledge on MHC.

Knowledge summary on HEP similarly also had a positive association with ANC (AOR= 5.78 95% CI (2.8 – 11.8), the odds of using ANC service were 5.8 times higher among those exposed to HEP when compared to those who did not. A knowledge summery for both MHC and HEP was made and categorized 1 as in yes and 0 for no. the contribution of HEW (OR =0.082, 95% CI (0.04 -0.12) on the use of MHC was as significant as the contribution of HF (COR =0.08, 95% CI (0.042 – 0.12) through knowledge and awareness on MHC due to the fact that both the HC and HEW provide almost equal contribution on the provision of knowledge on MHC (37.5% & 38% respectively).

In this study, it is found that planned pregnancy was associated with ANC only with the AOR = 13.6 with 95% CI (5.4 – 34.5) which mean that the odds of using ANC service were 13.6 times higher among those HHs who have had a planned pregnancy within the two year period prior to the study when compared respondent with unintended pregnancy. Since the average time it took for the respondent to reach to the HF was 12 minutes, time to reach was weakly associated with the indicator variables, ANC with AOR= 0.91 (95% CI 0.86-0.97), SBA, AOR= 1.23 (95% CI (1.1 – 1.4) & PNC AOR= 0.96 (95% CI 0.9- 1.02) which is almost positively associated except with PNC which is insignificant since the CI crosses one. This study also found that the history of loss of child while using skilled services from HF as a result of any related cause wasn't statistically associated with the utilization of basic maternal health care.

5.8.Association between MHC utilization and community based innovative program

The basic task of the HEW were considered as the way to measure the association with the outcome variables. The result of the logistic regression and without adjustment will be displayed in the table below.

In 15, you can see that the selected basic task of the HEP were significantly associated with the utilization of basic maternal health care services. Training on MHC during the pregnancy and after birth had an effect on the three indicators, we can see that the odds of attending ANC & PNC were AOR=3.6(95% CI 1.7, 7.8) and AOR=2.9 (95% CI 1.6, 5.6) times higher among those who have received a training on MHC from HEW during their maternity compared to those who haven't get the chance to involve respectively.

When we see the home visits, it has significantly associated with ANC and PNC but not with SBA. The odd of accessing ANC and PNC service during maternity were AOR=7.8 (3.5, 17.3) and AOR=2.8 (95% CI 1.7, 7.5) times higher among those who were visited by HEW during their maternity when compared to those HHs who were not visited by HEW. The strength of the association were similar across the program characteristics tasks but these tasks came shorter for the case of skilled birth attendant, but it had stronger association among those respondent who were exposed to promotion of maternal health services and birth preparedness and complication readiness tasks (AOR=0.1 95% CI 0.01, 0.4) for those with promotion & AOR=0.3 95% CI 0.2, 2.3 for those with birth preparedness and complication readiness).

Table 15, the association between ANC with the basic task of HEP among pregnant mothers, 2016

Independent variables		**ANC**			
		Yes	**No**	**COR**	**AOR**
Training on MHC	yes	491	27	3.26(1.6, 6.6)	3.6(1.7, 7.8)
	No	60	21		
Advice on the danger sign	Yes	49	3	4.2(2.1 8.4)	4.2(1.9, 9)
	No	68	17		
Home visits by HEW	Yes	484	13.7	5.8(2.9,11.9)	7.8(3.5,17.3)
	No	86	14		
Promotion of basic service	yes	503	9	5.9(2.8, 12)	9.4(4.1,21.7)
	no	82	8		
Advice on the ID	yes	510	13	3.9(1.8, 8.6)	5.8(2.5,13.8)
	no	70	7		
Birth preparedness and complication readiness	yes	466	9	**2.2(0.5, 9)**	1.8(1.2,3.8)
	No	120	5		

HEW health extension worker COR=crude odd ration *AOR= Adjusted odd ration *every value at significant at p<001, no= reference for every variable

Table: 16 association between SBA and basic task of HEP among pregnant mothers, 2016

Independent variables		SBA			
		Yes	No	COR	AOR
Training on MHC	yes	490	37	0.45(0.1, 0.4)	0.02(0.01, 0.4)
	No	6	1		
Advice on the danger sign	Yes	445	86	0.2(0.02 0.3)	0.014(0.01,0.2)
	No	59	8		
Home visits by HEW	Yes	400	150	0.3(0.1, 0.7)	**0.2(0.1, 3.4)**
	No	44	4		
Promotion of basic service	yes	358	15	0.3(0.1,0.46)	0.1(0.01,0.4)
	no	143	2		
Advice on the ID	yes	350	12	0.7(0.4,0.96)	0.3(0.02,0.4)
	no	160	4		
Birth preparedness and complication readiness	yes	420	20	0.8(0.8,0.9)	0.3(0.2,2.3)
	No	130	5		

HEW health extension worker COR=crude odd ration *AOR= Adjusted odd ration *every value at significant at p<001, no= reference for every variable

Table: 17 association between PNC and basic task of HEP among pregnant mothers, 2016

Independent variables		PNC			
		Yes	No	COR	AOR
Training on MHC	yes	441	11	20.2(8.5, 48.9)	2.9(1.6,5.6)
	No	28	14		
Advice on the danger sign	Yes	422	2	21.8(10, 47)	2.2(1.4, 6.1)
	No	20	2		
Home visits by HEW	Yes	420	10	4.3(2.7 7.4)	2.8(1.7 7.5)
	No	175	18		
Promotion of basic service	yes	429	8	7.3(6.7,13.2)	4.2(3.9,6.6)
	no	37	5		
Advice on the ID	yes	335	10	8.6(6.6,24.4)	2.5(1.2, 4,6)
	no	85	22		
Birth preparedness and complication readiness	yes	430	20	2.2(0.5, 9)	1.6(0.3, 7.9)
	No	80	8		

HEW health extension worker COR=crude odd ration *AOR= Adjusted odd ration *every value at significant at p<001, no= reference for every variable

The figure below, show that the contribution of the main task of the program on the utilization of basic service among mothers with live birth through logistic regression and we can see that the task had significant contribution to ANC and PNC and higher contribution for SBA was observed on advice given to the mothers by HEW during their pregnancies.

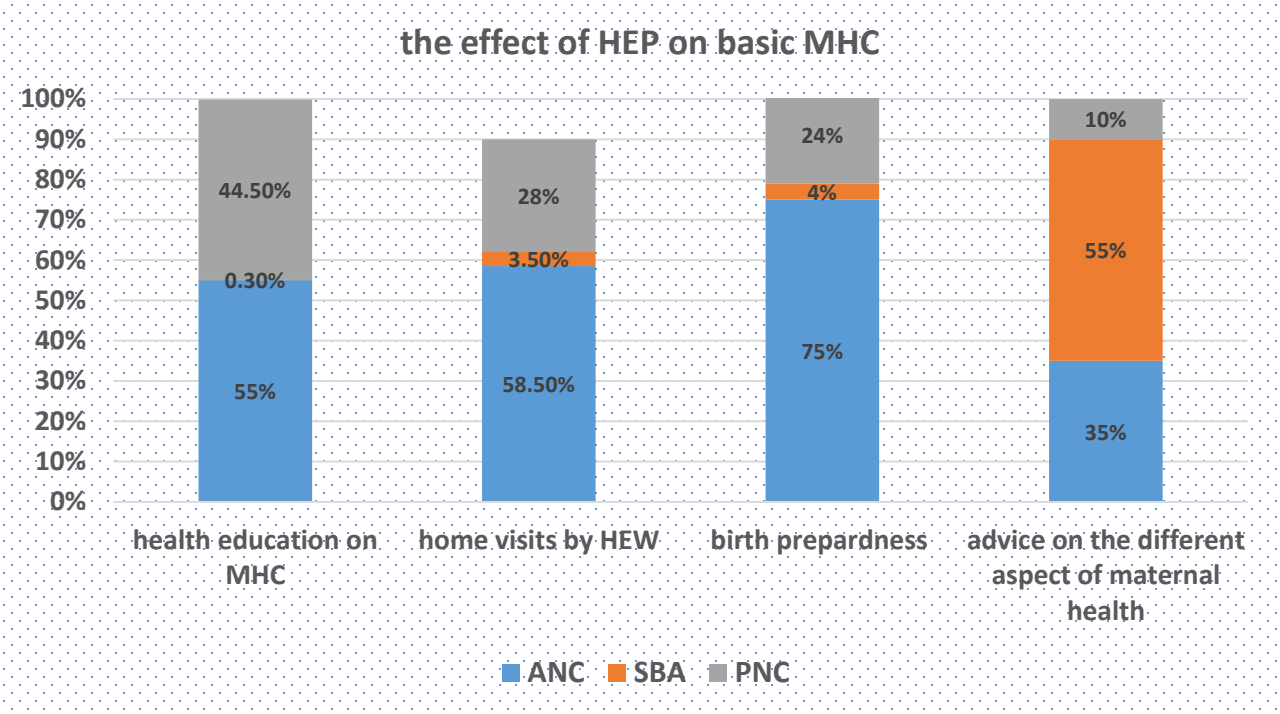


Fig 6, the contribution of the important tasks of the program to the utilization of each of the basic maternal health care based on the result of the logistic regression used

In addition to the program, there are other social based structures emerged following HEP including FDA and 1to5 grouping. (See table 18).

In 18, we can see that both FDA and 1 to 5 grouping were associated with either of the three maternal services. The odds of attending ANC, SBA and PNC were 1.8, 0.7 and 3.6 times higher for those respondent who involved in FDA compared to those respondent who hadn't had involvement in FDA before. But for the case of female based 1 to 5 grouping, it was only significantly associated with PNC (AOR=4.5 95% CI 1.6, 12.3) but it wasn't associated with ANC and SBA.

Table 18, the association between the communities based program against the three basic maternal health care service utilization (n=599)

Independent variables	Indicators of the basic maternal health care					
	ANC		SBA		PNC	
	COR	AOR	COR	AOR	COR	AOR
Acquainted and participate in FDA	**1.2(0.6, 2.4)**	1.8(1.4, 3.6)	0.5(0.47, 0.6)	0.7(0.6,0.8)	3.4(1.7,6.5)	3.6(1.8, 7.5)
Members of 1 to 5 grouping	1.2(1.05,2.2)	**0.7(0.3,1.5)**	**0.7(0.6,1.74)**	**0.00**	4.2(1.6,11)	4.5(1.6, 12.3)

For every variable the category weak was used as a reference, sig P<0.001

In order to further observe the effect of the program on the utilization of the basic maternal health care, the effect of the program on the knowledge and health action were summarized separately.

In table 17, can show that the association between the overall effects of the community based innovative program known to us as HEP, FDA and 1 to 5 female based grouping with the basic maternal health care utilization and it was found that the program was strongly associated with ANC and PNC but it wasn't that strong with SBA.

The odds of accessing both ANC and PNC were 5.2 and 5 times higher for those respondents from HHs who were under the effect of HEP from the knowledge perspective than those who weren't exposed respectively but it wasn't associated with SBA. Similarly from the practical skill perspective, the odds for accessing of both ANC SBA and PNC were 1.9, 0.3 and 11 times higher among mothers from HHs who were under the practical skill effect of the program compare to the non-respondent one during their maternity period. (See table 16)

Table 19, the association between the summaries on the effect of HEP through knowledge and practice category with the basic maternal health care service use (n=599)

Independent variable	Basic maternal health care services					
	ANC		SBA		PNC	
	COR	AOR	COR	AOR	COR	AOR
Effect by knowledge (good/poor)	4(1.9, 8.5)	5.2(2.3, 11.4)	0.5(0.1,0.7)	0.00	3.4(2.5,22.5)	5(3.5, 27)
Effect by practical involvement (good/poor)	2.9(1.1,7.5)	1.9(0.7,5.1)	0.7(0.6,0.8)	0.3(0.2, 0.5)	5.9(3.1, 7.6)	3.4(2.5,6.6)

When we compare the contribution of wealth and income in comparison with the community based innovative program effect on improving the utilization of maternal health care services we can see that the contribution of this community based program was as significant as income and wealth on the utilization of basic service of maternity. In the case of income the use of ANC was 7 times higher and 3.8 times higher for PNC among pregnant women's with average income in the highest quintile compared to pregnant mothers in the lowest quantile, the same happens to wealth score category which is 1.7 and 2.4 times higher in the use of ANC and PNC across the lowest and the highest quantiles respectively. Similarly when we see the effect of the program among pregnant mothers who had a good effect, the utilization of these basic maternal health care services were significant. The use of ANC and PNC were 5 times higher for pregnant mothers with the good program effect compared to pregnant mothers with least program effect which might indicate that in improving the utilization of basic maternal health care service, involvement of mothers during their pregnancy in the community based program was as important as that of socio economic conditions.

6. Discussion

In this study, the effect of the first level predictor were evaluated for their association with the outcome variable. Factors like age at first marriage, number of children ever born, occupation, sex of the HHs head, average monthly income, wealth score and other socio demographic factors and after removing their effect, the association of the main tasks of the program was done with the basic MHC services. Home visits by HEW, advice about the danger sign, promotion of maternal health care service, health education on the importance of institutional delivery and maternal health care, advising on birth preparedness and complication readiness in addition to that structure that are build basing the program including FDA and 1 to 5 grouping also had association with some of the indicator variables. In the other side it consider the most important outcome variables that will impact on the well-being and mortality of the mothers including ANC, SBA and PNC. (27)

6.1.ANC

Antenatal care is one of the pillars of the Safe Motherhood Initiative, and helps provide interventions that are necessary for healthy pregnancy outcomes which can definitely impacts the maternal health scale, this study also suggested that at least mother should have one ANC visit during pregnancy but much preferable if the mother went for four ANC visits to have better birth outcome ([28,30]), similarly in this study 96% of respondent who had ANC visits, 92% of them had attended four times during their pregnancy. Different studies suggested that there socio demographic factors that affects ANC which includes education, women decision making, women's employment, parity and marital status ([29-32]), similarly this study found that women's with better education, strong decision making power, the number of children born to the women were strongly associated with ANC and these study also found that women in the higher wealth index found to access more compared to women in the lower index, in addition it also found that sex of the HHs heads was found to be predictors of ANC services use.

During ANC the most expected service of the HEW were included in the study. This study found that health education and advice regarding maternal care plus home visits were significantly associated with service utilization which was similar with the finding of the study done in Tigray ([14]), this study also shows the percent contribution of ANC service use attributable the community based innovative program and it was significant, even though this study didn't measure the attribute the program has on ANC, by considering the serious of services given to mothers during

their pregnancy that can influence frequent use and it suggested that the above mentioned tasks produce strong contribution for women accessing four ANC. Even though the above study didn't shows the extent of involvement in relation to the mothers wealth score, but this study in the contrary found that level of involvement in the programs becomes stronger as we go down in the wealth index. The poor tends to involve more compared to the rich which might help to improve use of ANC for the women in the poor wealth index.

The above study ([14]) also suggested that contribution of vCHW was significant for ANC and PNC but not with SBA, the finding of this study found that the extent of involvement and visits by FDA in Addis context were significantly associated with either of the outcome variables but for the case of female based 1 to 5 grouping, its contribution in the regression model found that it was only associated with PNC. Based on the document review, it was found that no separation and segregation was made based on the socio economic status of the HHs to involve in the community based innovative programs.

6.2.SBA

In this study skilled birth attendant was meaning institutional delivery. SBA in one of the proxy indicator which is used in tracing the achievement of MDG 5 and most study found that there is a very strong association between SBA and reduction of maternal mortality. (29) Those variable which were used to define ANC mainly similarly was applied to SBA to see their effect, but their strength of association was not as stronger as their association with ANC. The above studies also found that factors that influence ANC would mostly affect SBA, the most predictors of ID was women decision making power – the more a women had a decision making power in the HHs the more likely for delivering the baby in the HF, parity- women in their first pregnancy tend to seeking assisted delivery compare to women with history of many pregnancy and wealth- women from the richest family tends to have ID compared to the women from less wealthy family ([29-30]). This study found that for the women to have their baby in HF, their ability to involve in decision making on having their last pregnancy and better wealth status found to be predicators. Most of those who under gone home delivery in their last pregnancy their wealth score was fall under the lowest quantile category

According to the 2011 EDHS, the magnitude of SBA were almost 84%, in this study 98% of the HHs had their baby with in the past two years prior to the study in the HF. A study done in the northern region of Ethiopia state that it was difficult to link the program factors with SBA the same thing happen to this study ([14]), we can't definitely say that the raise in the use of SBA was attributable to the program since HEWs were not allowed to carry delivery in the urban setting, but there were basic service that can influence ID were given to 96% of those respondent who had their baby in HF which includes HE on institutional delivery, birth preparedness & complication readiness and referral from HEW. After controlling for the effect of other variables there is a very few difference exists on the use of SBA among mothers based on their extent of involvement in the program. The contribution of other community based program in addition to HEP like FDA and 1 to 5 grouping was significant but weakly associated with SBA

6.3.PNC

Every mother should have their PNC visits with in 48 hrs, but preferably within 24 hrs after birth because most of the maternal death takes place within this time period. Initiating PNC in the early time is very beneficiary in improving the neonatal survival. In Addis the level of PNC were 48%. But it was much better compared to this study which is 92%. It is found that mother who had used ANC or SBA service during pregnancy more likely to attend their PNC since they were advice about the importance of using skilled service in the HF for the health of both the mother and newborn. The studies in Ethiopia ([30]) suggested women who have never been married before, better educational status, women's in the richest wealth index and women with one child had the highest proportion of PNC service use. Similarly this study found that only birth order and wealth score happen to be associated with PNC

Similar study ([14]) found that the contribution of the program was very less than the expected during PNC, in the contrary 75% of the mothers in the study were visited by HEW after their delivery more often less than a month. In Addis, the outreach services of these community based program mainly focus on mothers and newborn which improves service provision during PNC. In addition to HEP, there were other community based structure aiming for different purpose including health issues which contribute a lots in the changing health care behaviors of the community especially mothers during maternity. Among those who engaged with FDA plus member of the 1 to 5 grouping, they were more likely to access maternal service than those who weren't involved.

Involving in this structure also had the importance of having discussion on MHC and disadvantages of other cultural practice towards women and children. Since this structure were under the supervision of HEW, their effect shouldn't be seen separately from the program effect. This structure also creates opportunity for the community to involve in the actions that were relevant to maternity like identification and prevention of home delivery plus registration and immediate reporting of the early pregnant mothers in their surroundings.

7. Limitation and strength of the study

The strength of the study is that, it demonstrated favorable aspect of the community based innovative programs and FDA on service use during maternity up on which the future maternal health care program can be built on. Effort was made to complement the interview with document and record review. This study doesn't ensure the temporal relationship between the exposure and the outcome variable meaning that as like any other research which employed cross-sectional descriptive study design this study doesn't ensure the temporal relation between the community based innovative program and the basic maternal health care service utilization. Since respondent were asked up to the last two years there was a recall bias.

Conclusion

The effect of community based innovative program (HEP, FDA & 1 to 5 group)) on the utilization of the basic maternal health care services were statistically significant. From the identified main tasks of HEW that believed to be predictor of the services use were strongly associated with especially with both ANC and PNC. But for most of the program indicators, institutional delivery or in our case skilled birth attendant come short, which wasn't statistically significant. Also FDA were associated with the three outcome variables but 1 to 5 female centered grouping only significantly associated with PNC. In addition socio economic inequalities also prevails in this study. But the contribution of the program on the service utilization were higher in the lower wealth. Community structures which were built following the coming of HEP also had a strong contribution for improving of health seeking among mothers during their most need in collaboration with HEP.

Recommendation

- ✓ Since SBA is the most important one in the maternity care, the supervising body to HEW should guide the health worker on the close identification and support of a pregnant women in their implementation site and provide the proper care and readiness for the women to go for institutional delivery.
- ✓ The woreda women and child office in collaboration of health office should strength and support the community based mobilization structures like FDA and 1 to 5 grouping and provide them their own responsibility within their site regarding identification of pregnant mothers and prevention of home delivery and other harmful traditional practice
- ✓ The Addis Ababa health bureau by considering the significance of the program in the creation of health seeking behavior, should improve the program by adjusting the program from the perspective of comprehensive service package to the basic community needed based perspective by giving due emphasis to mothers and children
- ✓ The health center should create a system that enhance utilization of basic service and prevention of home delivery or service dropout during maternity by identifying and recognizing site that the HEW is working more effectively which might create more motivation for the community structure to functions more hence will change the health seeking behavior and utilization of at least the basic care service
- ✓ Currently every districts (woredas) had their own health center which might facilitate the utilization of basic health care service by the catchment population, so health centers should encourage the facility staff to conduct more frequent outreach visits which might improve the acceptance of HEW by the community.
- ✓ Health office also should consider the importance of FDA in the dissemination of information plus they can be used as a channel between the community and HEP, so FDA should be integrated with the health centers outreach activity plus awareness and capacity building should be considered in order to improve their effect in most sensitive issues like maternal health

Reference

1. The tenth version of the international classification of disease, WHO, instruction manual 2010 edition
2. Safe motherhood program, 2010, WWW.safemotherhood.org
3. WHO, maternal health care and maternal mortality trend, updated may 2014
4. Central Statistics Agency: Ethiopia and ICF International, Ethiopian Demographic and Health Survey, 2000
5. Zahidul Quayyum1, Mohammad Nasir Uddin Khan, Tasmeen Quayyum, Hashima E Nasreen, Morseda Chowdhury and Tim Ensor, "Can community level interventions have an impact on equity and utilization of maternal health care" – Evidence from rural Bangladesh" 2013
6. Barbaba Kinzie, Patricia Gomez: basic maternal and newborn care, a Guide for skilled providers, USID may 2006
7. Central Statistics Agency: Ethiopia and ICF International, Ethiopian Demographic and Health Survey, 2005
8. Central Statistics Agency: Ethiopia and ICF International, Ethiopian Demographic and Health Survey, 2011
9. MesfinAddisse, M.D., M.P.H. university of Gondar, charter center lecture note on maternal and child health care, January 2003
10. WHO fact sheet about maternal mortality, updated may 2014
11. Saifuddin Ahmed, Andreea A. Creanga , Duff G. Gillespie, Amy O. Tsui, Economic Status, Education and Empowerment: Implications for Maternal Health Service Utilization in Developing Countries, june 23, 2010
12. Nazmul Alam, Mohammad Hajizadeh, Alexandre Dumont, Pierre Fournier: Inequalities in Maternal Health Care Utilization in Sub-Saharan African Countries: A Multiyear and Multi-Country Analysis, © 2015 Alam et al.
13. TIM ENSOR AND STEPHANIE COOPER, Oxford university press review article, overcoming barrier to health service access: influencing the demand side, 2004
14. Ali MehryarKarim, WuletaBetemariam, Samuel Yalew, HibretAlemu, Mary Carnell, YaredMekonnen, Programmatic correlates of maternal healthcare seeking behaviors in Ethiopia, Ethiopian journal of health development, 2010

15. FDRE, MOH, policy and practice, information for action, quarterly health bulletin, may 2013, volume 5
16. Charlotte Warren, Care seeking for maternal health: challenges remain for poor women, Ethiopian journal of health development, 2010
17. Ahmed Abdella, Maternal Mortality Trend in Ethiopia, Ethiopian journal of health development, 2010;24 Special Issue 1 :115-122
18. Ethiopian Federal ministry of health, urban health extension program implementation manual, 2009
19. Mesganaw Fantahun Afework1, Kesteberhan Admassu, Alemayehu Mekonnen , Seifu Hagos , Meselech Asegid and Saifuddin Ahmed, Effect of an innovative community based health program on maternal health service utilization in north and south central Ethiopia: a community based cross sectional study, 2014
20. Jennifer Wilder, Ethiopia's Health Extension Program: Pathfider International's Support 2003-2007, 2008
21. World report, Extension workers drive Ethiopia's primary health care, www.thelancent.com, September, 2008
22. Negalign Berhanu Bayou, Yohannes Haile Michael Gacho, utilization of clean and safe delivery service package of health services extension program and associated factors in rural kebeles of kafa zone, southwest ETHIOPIA, July 2013
23. Ethiopian ministry of health, urban health extension program, implementation manual, 2010
24. Mesganaw Fantahun Afework, Achieving the Maternal Health Millennium Development Goals in Ethiopia: Where are we and what needs to be done? Ethiop. J. Health. Dev, 2010 special issue 1
25. Solomon Tesfaye, A National Scoping Exercise and Strategic Recommendations for Working with Individuals, Families and Communities to improve Maternal and Neonatal Health in Ethiopia, Ethiop. J. Health. Dev, 2010 special issue 1
26. Central Statistics Agency and MOH, Ethiopian mini Demographic and Health Survey, August 2014
27. Central Statistics Agency: Ethiopia and ICF International, Mini Ethiopian Demographic and Health Survey, 2014

28. Zoe¨ Matthews, Amos Channon, Sarah Neal, David Osrin, Nyovani Madise, William Stones, Examining the ‘‘Urban Advantage ’’ in Maternal Health Care in Developing Countries, © 2010 Matthews et al.
29. Benedict O Asamoah, Anette Agardh, Karen Odberg Pettersson and Per-Olof Östergren, Magnitude and trends of inequalities in antenatal care and delivery under skilled care among different socio-demographic groups in Ghana from 1988 – 2008, © 2014 Asamoah et al.
30. Shegaw Mulu Tarekegn, Leslie Sue Lieberman and Vincentas Giedraitis, Determinants of maternal health service utilization in Ethiopia: analysis of the 2011 Ethiopian Demographic and Health Survey, © 2014 Tarekegn et al.
31. Abebaw Gebeyehu Worku1, Alemayehu Worku Yalew and Mesganaw Fantahun Afework, Factors affecting utilization of skilled maternal care in Northwest Ethiopia: a multilevel analysis, 2013
32. Tewodros Alemayehu, Jemal Haidar, Dereje Habte, Utilization of antenatal care services among teenagers in Ethiopia: A cross sectional study,2010

Annex: I conceptual frame work of the contribution of community based innovative program and FDA on basic maternal health care utilization

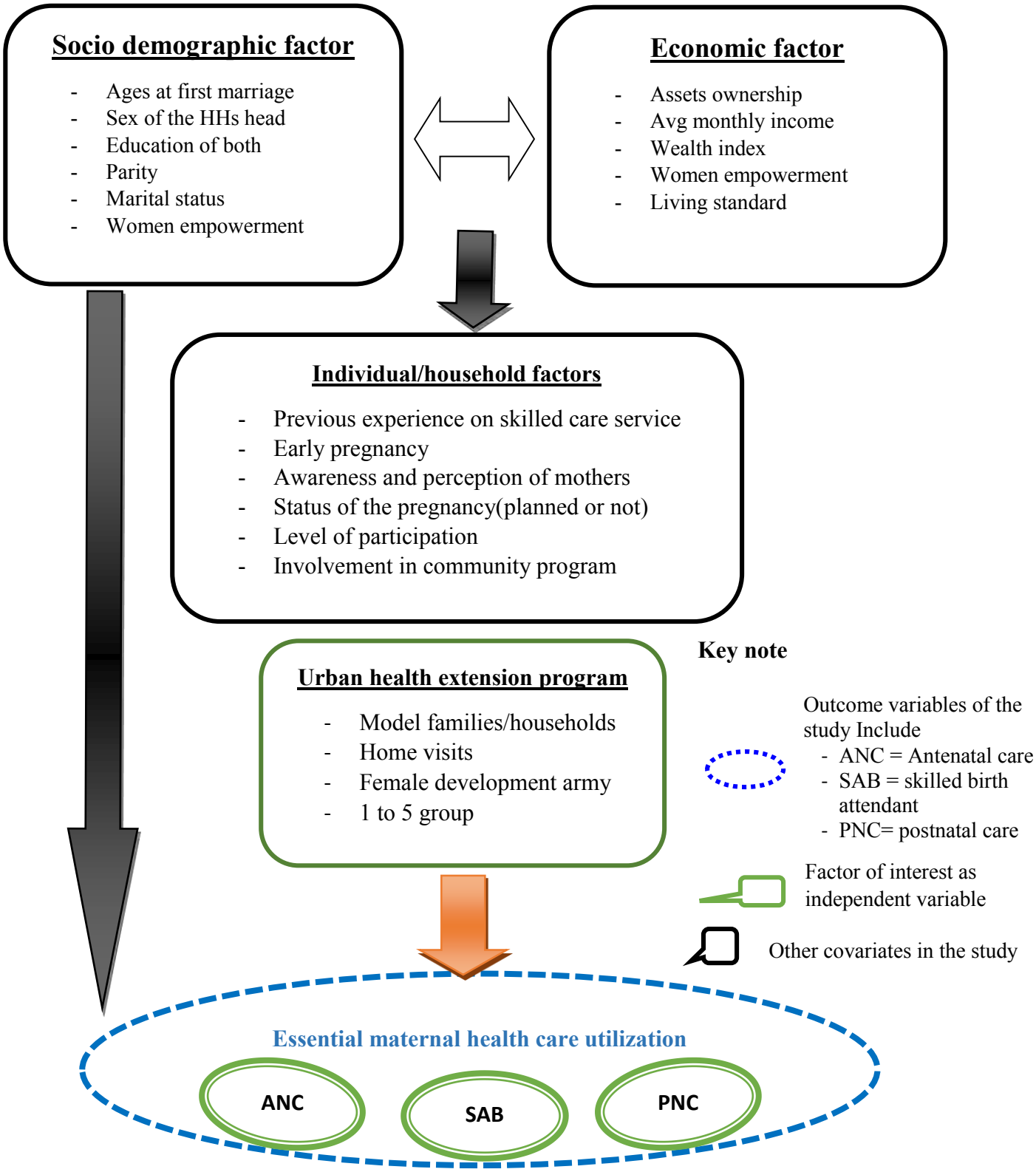


Fig: 7Conceptual framework for studying the effect of HEP on EMHC which was adopted from a research done on programmatic correlated of maternal health care utilization, 2010 Ethiopia ([14])

Annex: I Questionnaire prepared for assessing the effect of health extension program and FDA on basic maternal health care utilization in Arada sub city, Addis Ababa 2016

Information sheet for the informed consent

Iam a student at the university of Addis Ababa and currently iam doing my thesis on the effect of urban health extension program on essential maternal health care utilization at the primary health care level in Arada sub city. As you know maternal death is becoming a serious public health problem in our country Ethiopia as a result of a preventable cause. In order to reduce the problem, the gov't is scaling up the health extension program to the urban setting based on the success story in the rural since 2010. This study is aimed at assessing the effect of the program on maternal health care utilization and the finding of the study will help the official in improving maternal health care through health extension program. And those mother who are living in Arada sub city who had been pregnant in the past two years prior to the study period will randomly be selected for the study. Participant will be asked questions related with service use and health extension program. The interview will only last within 25 to 35 second. The information you provide will only be used for this study and we strictly maintain confidentiality. Data's are recorded using codes and will be kept under the controls of the investigators and will not be used for other purposes other than this study. Participant also have the right to withdraw from the study at any time they want but your response will do a lot to our study. No harm will come to you nor will you get benefit as a result of participating in this study.

If you have any question and confusion regarding the questions you have the right to ask the interviewer but if goes beyond you can contact the investigator of this study on the following address.

Email address nabulove27@gmail.com and phone number 0913004501.

Informed consent agreement sheet

Since we have already explained the purpose of the study and importance of your participation to this study. Are you willing to participate in this study?

Yes I agree ☐ no I don't agree ☐

Would you show your consent with your signature?

Participant sign _____

Questionnaire prepared for assessing the effect of community based innovative program & FDA on basic maternal health care utilization at the primary health care level in Arada sub city, Addis Ababa 2015

Section1: socio- demography characteristics

Name of the respondent:				**Woreda:**		**House number:**			
1	**2**	**3** (PHU data)	**4**	**5** (PHU data)	**6** (PHU data)	**7** (PHU data)	**8** (PHU data)	**9**	**10**
Sex of the HH head **1.Male** **2.female**	**Age of the mother**	**Current marital status** 1.single 2.married 3.divorced 4.separated 5.widowed	**Number of children ever born**	**Educational status of the partners** 1. illiterate 2. can read and write 3. primary 4. secondary 5. college and higher	**Educational status of the mother** 1. illiterate 2. can read and write 3. primary 4. secondary college and higher	**Occupational status of the husband** 1. professionals 2. sales 3. skilled labor 4. unemployed Housewife/retired	**Occupational status of the mother** 5. professionals 6. sales 7. skilled labor 8. unemployed 9. Housewife/retired	**Ethnicity of the mother** 1. Oromo 2. Amhara 3. Tigray 4. Other	**Religion of the HHs** 1. orthodox 2. Muslim 3. Protestant 4. other
11		**12**							
The last birth outcome of the mother 1. live birth 2. still birth		**Most often used media** 1. radio 2. TV 3. Magazine 4. News paper 5. Other							

Socio-economic characteristics of the HHs

13	**14**	**15** (PHU data)		**16** (PHU data)	**17**	**18**	**19** (PHU data)	**20** (PHU data)	**21**(PHU data)
Monthly income of husband	**Monthly income of wife**	**Does the HH has** 1. Wall watch 2. Radio 3. TV 4. Mobile 5. Electric mitad 6. Refrigerator **7.** Electric cooking utensils	8. Pressure cooker 9. Microwave oven 10. Washing machine 11. Computer of any kind 12. Bicycle 13. Truck/automobile **14.** Private owned house	**Cooking place** 1. Separate kitchen 2. Outside of the house **3.** None	**How many rooms in the house used for sleeping**	**Does anyone in the house owned bank account** 1. Yes **2.** No	**Drinking water source** **1. Piped in the dowelling** **2. Piped in the compound** **3. Bono** **4. Other source**	**Types of latrine in the HH** **1. Improved** **2. Un improved** - **Private** - **Communal** - **Gov't** **3. Open filed**	**Shower in the HH** 1. Yes - Private - Communal **2.** No

For those questions with the note (PHU data) – meaning information can be obtained from the primary health care data of UHEP, this questionnaire is only designed for those women who had their maternity period with in the past two years prior to the study

Section II: participant information regarding maternal health care

Q. no.	Question	Respective response	Remark
1	Have you ever heard of maternal health before	1. Yes 2. No	
2	What was your source of information	1. Media like TV, radio 2. Health center 3. HEW 4. Other specify	
3	Were you awered of service given to mothers in their paternity period	1. Yes 2. No →	Q6
4	If yes, does the respondent provide at least two appropriate answer	1. Yes 2. No	✓ ANC ✓ Clean and safe delivery ✓ PNC ✓ Immunization ✓ Health education and counseling
5	If yes, How many times you think pregnant mother should visits HC for ANC	1. Once through the pregnancy 2. Twice 3. Three times 4. Four times 5. Other specify	
6	Do you think ANC visits will improve the birth outcome	1. Yes 2. No	
7	Do you think assisted delivery will reduce the risk of complication to both the mother and newborn	1. Yes 2. No	
8	Do you think TBA's are as well skilled as trained health professionals in assisting delivery	1. Yes 2. No	
9	Do you think home delivery will reduce the risk of complications of the mother and new born	1. Yes 2. No	
10	Do you agree that birth outcome is only be determined by the physical capacity of the mothers	1. agree 2. I don't agree	
11	Do you agree that mother should continue her visits after birth	1. I agree 2. I don't agree	
Information regarding urban health extension program			
12	Have you heard about HEP before	1. Yes 2. No	
13	Can the respondent at least mentioned two packages of the program	1. Yes 2. No	✓ Hygiene and environmental sanitation ✓ Family health care ✓ Disease prevention and control

14	To which task of the HEW are you familiar with	1. Health education 2. Home visits 3. Referral 4. Outreach services	Outreach service- like vitamin A and deworming
15	Do you agree that HEP will bring health care seeking behaviors of the mother on the essential maternal health care	1. I agree 2. I don't agree	
16	Did you receive health education from HEW on maternal health care during your maternity period	1. Yes 2. No	

Section III: essential maternal health care use

Q.no	List of inquiries	Respective response	Remark
1	Was your last pregnancy planned	1. Yes 2. No	
2	If yes, Did you make equal decision on having a child with your husband	1. Yes 2. No	
3	Did you have ANC follow up in the last pregnancy	1. Yes 2. No →	Q7
4	If yes, How many times have you visited the health institution for you ANC during your last pregnancy	1. One times 2. Two times 3. Three times 4. Four times 5. Other specify	
5	When was the time you started attending your ANC follow up	1. During the 1st trimester 2. Second trimester 3. Third trimester	
6	during your follow up, do the health professionals in the facility advice you regarding danger sing of pregnancy	1. Yes 2. No	
7	If the mother has one and less visits, what was the reason	1. Not aware of the number of visits needed 2. Distance from the health center 3. Perceived quality at the health center 4. Use of TBA's 5. Other specify	
8	How many minutes will it take for you to reach to the health center		
9	Have you ever lost a child or got serious complication during accessing skilled service in the facility	1. Yes 2. No	
10	Where was your ANC follow up	1. Health center 2. Gov't hospitals 3. Private clinic/hospital	
11	Where was you delivery taken place	1. Health institution 2. Home	
12	If your delivery was at home, what was your reason	1. Sudden nature of the labor	

		2. Lack of confidence in the nearby health center 3. Perceived cost of accessing the service 4. Problem of transportation 5. Lack of awareness of the need of skilled delivery	
13	How do you describe the birth outcome of your delivery	1. More than satisfactory (no bleeding & complication 2. Satisfactory(except that I wait a bit long) 3. Moderately dissatisfied (there was bleeding) 4. Dissatisfied (there was both bleeding and complication) 5. I don't remember	
14	Did you visits the health facility after delivery during the postnatal period	1. Yes 2. No	
15	When was your first PNC visits after delivery	1. Within 24 hr after birth 2. Within 3 days after birth 3. Within 7 days after birth 4. 45 days after birth 5. Un specified	
16	Where was your place of PNC follow up	1. Health center 2. Private hospital 3. Gov't hospital	

Section IV: the effect of urban health extension program on maternal health care utilization

Q.no	List of inquires	Respective response	Remark
1	Have you ever involved in HEP before	1. Yes 2. No	
2	If yes, did you complete model household training	1. Yes 2. No	
3	Did you specifically received training on maternal health care from HEW	1. Yes 2. No	
4	Did the HEW advice you on the danger sign of pregnancy and labor	1. Yes 2. No	
5	If yes, can the mother at least mention two danger sign of pregnancy	1. Yes 2. No	✓ Bleeding ✓ Severe nausea and vomiting ✓ Baby's activity level significantly decline ✓ Persistent severe headache, abdominal pain ✓ Visual disturbance ✓ Flu symptom ✓ Water broke
6	Does the HEW visited your house during your pregnancy	1. Yes 2. No	

7	If yes, how often was her visits	1. Twice a month 2. Every month 3. Every three month 4. 4 and above months in this pregnancy	
8	At what month of your pregnancy that HEW visited your house		
9	The first time when you were visited by HEW, did she promote the maternal health care services	1. Yes 2. No	
10	If your delivery was in the health facility, does HEW help you in making the decision by advice you on the importance of institutional delivery?	1. Yes 2. No	
11	If yes, can the mother at least provide two answers regarding the benefit of institutional delivery	1. Yes 2. No	- Safe delivery - Preventing death of the mother and the newborn - Avoiding infection and other expected problem - Enrolling both the mother and child in the continues of care - For the control and management of complication - For health education and counseling for better health behaviour and practice including FP, immunization etc
12	If yes, What preparation you received from the HEW	1. HEW Checked whether I attended my four ANC visits 2. She explained the need of trained professional on the management of complication 3. She explained the importance of delivering in the facility for the newborn wellbeing 4.She mentioned packages of service like immunization and growth monitoring of the baby will be given in the health facility	-

13	Have you ever notice HEW trying to identify any incidence of home delivery	1. Yes 2. No	-
14	Have you ever encounter a practice of home delivery in your locality with in the past 2 years?	1. Yes 2. No	-
15	If no, do you think the program has contribution to this cultural change?	1. Yes 2. No 3.	
16	It yes, do you think, it is because of a reason related with their inadequate involvement in the program	1. Yes 2. No	
17	Did HEW visits you after delivery/ postpartum period?	1. Yes 2. No	
18	How often did she visits you	1. Within the first week 2. Within 15 days after birth 3. Within a month 4. She never came	
19	Does the HEW advice you on how to care for yourself and the newborn during the postpartum period?	1. Yes 2. No	
20	Are there any one in this house who have received model training from HEW?	1. Yes 2. No	
21	How many model family are there in the locality of the respondent		Only filed by the nurse by inquiring from the HEW
22	Do you know anyone in your locality who are leader of female development army?	1. Yes 2. No	
23	Have you ever been visited and supported by the female HAD during your last pregnancy?	1. Yes 2. No	
24	How often was her visits during this pregnancy	5. Once a month 6. Every 3 month 7. After 6 month	
25	Are you the organized members of HAD or 1to5 women centered network?	1. Yes 2. No	
26	Have you ever discussed in your FHA group about maternal health	1. Yes 2. No	
27	Did you cooperate with HEW on the identification of pregnant and the prevention of home delivery?	1. Yes 2. No	

መሰረታዊ የሆነ የእናቶች ጤና አገልግሎት አጠቃቀም ላይ የከተማ ጤና ኤክስቴንሽን ፕሮግራም ያለውን አስተዋፆ ለመዳሰስ የተዘጋጀ መጠይቅፀ 2008 ዓ.ም አዲስ አበባ ኢትዮጵያ

ፍቃደንነትን ለመጠየቅ የተዘጋጀ የጥናቱ አጠቃላይ መረጃ

እኔ አሻግሬ ሲሳይ በአሁኑ ሰዓት በአዲስ አበባ ዩኒቨርሲቲ የማህበረሰብ ጤና ላይ የማስተርስ ትምህርቴን እየተከታተልኩ የምገኝ ሲሆነ በቀጠይ የመመረቂያ ጽሁፌን የከተማ ጤና ኤክስቴንሽን ፕሮግራም መሰረታዊ በሆኑ የእናቶች የጤና አገልግሎት ተጠቃሚነት ላይ ያደረገውን አስተዋፆ በሚል በአራዳ ክፍለ ከተማ ባሉት 6 ወረዳዎች ላይ ለመስራት በዝግጅት ላይ እገኛለው።እንደሚታወቀው የእናቶችን ሞት በሀገራችን ትልቁ የማህበረሰብ ጤና ችግር ሲሆን የሚከሰተውም በቀላሉ ሊወገዱ በሚችሉ ምክናቶች ነው። ይህንንም የእናቶች ሞት ለመቀነስ መንግስት የጤና ኤክስቴንሽን ፕሮግራም በገጠሩ ያስመዘገበውን መልካም ተሞክሮ ከግንዛቤ በማስገባት ወደ ከተማው እያስፋፋ ይገኛል። የዚህ ጥናት መሰረታዊ አላማም ይህ የከተማ ጤና ኤክስቴንሽን ፕሮግራም መሰረታዊ በሆነው የእናቶች የጤና አገልግሎት አጠቃቀም ላይ ያሳደረውን አስተዋፆ መዳሰስ ነው። በዚህ ጥናት ውስጥ በሳለፉት ሁለት አመታት ውስጥ ነፍሰጡር የነበሩ እናቶችን ብቻ የሚካተቱበት ሲሆን መጠይቁም የሚሞላው ስልጠና በተሰጣቸው የጤና ባለሞያዎች በቃለመጠይ አማካኝነት ይሆናል። ይህ ቃለመጠይቅ ባጠቃላይ ከ25 እስከ 30 የሚሆኑ ደቂቃዎችን የሚፈጅ ሲሆን ተሳታፊዎች በዚህ ጥናት ላይ የመሳተፍ ፍላጎታች የተጠበቀ ይሆናል። በዚህ መጠይቅ ላይ የሚሰጡን መረጃዎች ከእርሶ ጋር በምንም ዓይነት በተያያዝነት አገልግሎት ላይ የማይውል ሲሆን የሚሰጡን መረጃዎች ከምንም ግዜ በላይ ሚስጥሩ የተጠበቀ ይሆናል እንዲሁም በዚህ ጥናት ውስጥ በመሳተፎ ምንም ዓይነት ጉዳትም ሆነ ጥቅማጥቅም እንደማይኖረው እንዲያውቁት ይገባል፡፡ ይህንን ቃለመጠይቅ ከጀመሩ በኋላ በማንኛውን ግዜ ቃለመጠይቁን ማቆም ይችላሉ ወይም መመለስ የማይፈልጉትን ጥያቄዎች ያለመመለስ መብቶ የተጠበቀ ሲሆን ለዚህ ጥናት የሚሰጡን ምላሽ ግን እጅግ አስፈላጊ እንደሆነ እንዲያወቁት እፈልጋለው።

ከዚህ ባሻገር ከጥናቱ ጋር በተያያዘ ማንኛውን ያልገቦት ጉዳይ ካል ቃለመጠይቁን የሚያደርገውን ባለሞያ መጠየቅ የሚችሉ ሲሆን ከዛም ካለፈ ጥናቱን የሚያደርገውን አካል ታች ባለው አድራሻ ማግኘት ይቻላል። ስልክ ቁ.ር 0913004501

ስለዚህ በጥናቱ ላይ ለመሳተፍ ፍቃደኛ ኖት አዎ ☐

አይደለሁም ☐

ፈቃደኛ ከሆኑ መሆኖትን ማረጋገጫ ፊርማዎትን ያኑሩልን _____

በዚህ ጥናት ላይ ለመሳተፍ ፈቃደኛ በመሆኖ ከወዲሁ አመሰግናለው።

የከተማ ጤና ኤክስቴንሽን ፕሮግራም በሰረታዊ በሆኑ የእናቶች ጤና አገልግሎት ተጠቃሚነት ላይ ያመጣውን ውጤት ለመዳሰስ የተዘጋጀ መጠይቅ፡ አራዳ ክፍለ ከተማ አዲስ አበባ 2008 ዓ.ም

ክፍል አንድ፡ የማህበረሰባዊ መረጃን በተመለከተ

የተጠያቂዋ እናት ስም :				**የሚኖሩበት ወረዳ :**		**የቤት ቁጥር :**			
1	**2**	**3** (PHU data)	**4**	**5** (PHU data)	**6** (PHU data)	**7** (PHU data)	**8** (PHU data)	**9**	**10**
የቤተሰቡ ሃላፊ ፆታ 3.ወንድ **4.**ሴት	**የተጠያቂቃ እናት እድሜ**	**በዚህ ሁለት ዓመት ውስጥ የጋብቻ ሁኔታ** 1. ያላገባ 2. ያገባ 3. የፈታች 4. የተለያየች 5. የሞተባት	**እስካሁን ባጠቃላይ የተወለዱ ልጆች ብዛት**	**የባል የትምህርት ሁኔታ** 1. ያልተማረች 2. ማንበብና መፃፍ ምትችል 3. የመጀመሪያ ደረጃ 4. ሁለተኛ ደረጃ **5.** ዲፕሎማና ከዚያ በላይ	**የተጠያቂዋ የትምህርት ሁኔታ** 1. ያልተማረች 2. ማንበብና መፃፍ ምትችል 3. የመጀመሪያ ደረጃ 4. ሁለተኛ ደረጃ ዲፕሎማና ከዚያ በላይ	**የባል የስራ ሁኔታ** 1. ፕሮፌሽናል 2. ሽያጭና አገልግሎት 3. ሞያተኛ 4. የጉልበት ስራ 5. ስራ የሌለው 6. ጡረተኛ	**የሚስት የስራ ሁኔታ** 1. ፕሮፌሽናል 2. ሽያጭና አገልግሎት 3. ሞያተኛ 4. የጉልበት ስራ 5. ስራ የሌለው 6. ጡረተኛ	**የተጠያቂዋ ብሔር** 1. ኦሮሞ 2. አምሀራ 3. ትግሬ 4. ሌላ	**ሃይማኖት** 1. ኦርቶዶክስ 2.ሙስሊም 3.ፕሮቴስታንት 4.ሌላ
11		**12**							
የመጨረሻው የልጅሽ ሁኔታ 3. በሕይወት የተወለደ 4. ሞቶ የተወለደ		**አብዛኛውን ግዜ የሚያዘወትሩት የመረጃ ምንጭ** 6. ሬድዮ 7. TV 8. መጽሔት 9. ጋዜጣ 10. ሌላ							

ኢኮኖሚያው መረጃዎችን በተመለከተ

13	**14**	**15** (PHU data)		**16** (PHU data)	**17**	**18**	**19** (PHU data)	**20** (PHU data)	**21**(PHUdata
የባል አማካኝ የወር ገቢ	**የተጠያቂዋ አማካኝ ወራዊ ገቢ**	**ከሚከተሉት ውስጥ በቤቱ የሚገኙ የትኞቹ መገልገያዎች ናቸው** 1. የግድግዳ ሰዓት 2. ሬድዮ 3. ቲቪ 4. ሞባይል ስልክ 5. የኤልክትሪክ ምጣድ 6. ፍሪጅ 7. ኤሌክትሪክ ማብሰያ 8. ፕሬዝር ኩከር 9. ማይክሮ ዌቭ አቨን 10. የልብስ ማጠቢያ ማሽን 11. ኮምፒውተር 12. ብስክሌት 13. የቤት/የጭነት መኪና 14. የግል መኖሪያ ቤት		**የምግብ ማብሰያ ቦታ** 1. የምግብ ማብሰያ ቦታ (ኪችን) ላቸው ከሆነ 2. ከመኖሪያ ቤት ውጪ የምግብ ማብሰያ የሚጠቀሙ **3.** የሌላቸው	**በቤት ውስጥ ለመተኛት የሚጠቀሙት ክፍል ብዛት**	**በቤት ውስጥ የባንክ ደብተር ያለው አለ** 1. አለ 2. የለም	**የመጠጥ ውሃ መገኛ** 1. በቤት ውስጥ ከተዘረጋ የቧንቧ ውሃ 2. ግቢ ውስጥ ከተዘረጋ ቧንቧ ውሃ 3. ከግቢ ውጪ ከቦኖ የሚጠቀሙ **4.** ሌላ	**የመፀዳጃ ቤት ዓይነት** 1. የተሻሻለ መፀዳጃ ዓይነት 2. ያልተሻሻለ መፀዳጃ ዓይነት - የግል - የጋራ - የህዝብ **3.** መፀዳጃ የሌላቸው	**የገላ መታጠቢያ ቤት አሎት** 1. አዎ - የግል መታጠቢያ - የጋራ መታጠቢያ **2.** የለም

ይህ መጠይቅ የሚቀርብላቸው ሴቶች እና ይህ ጥናት ከመደረጉ በፊት በሳለፍነው ሁለት አመት ግዜ ውስጥ ነፍሰጡር የነበሩ ወይም የወለዱ እናቶችን ብቻ ሲሆን ከዚህ ውጪ የሆኑትን ሴቶች አያካትትም። በጠይቆቹ ላይ የ PHU data ምልክት ካለ በጤና ኤክስቴንሽን የመጀመሪያ የጤና ክብካቤ ሪፎርም ላይ መረጃው ሊገኝ ይችላል ማለት ነው።

_ክፍል ሁለት፡ የእናቶች ጤናን በተመለከተ ተሳታፊው ስላለው መረጃ በተመለከተ

ተ.ቁ	ዝርዝር ጥያቄዎች	የሚሰጡ ምላሾች	መርመራ
1	ከዚህ በፊት ስለናቶች(ነፍሰጡር፣ ወሊድ እና አራስነት ግዜ) የጤና አጠባበቅ ሰምተው ያውቃሉ	3. አዎ 4. አላውቅም	
2	መልሶ አዎ ከሆነ መረጃውን ለመጀመሪያ ግዜ ከየት ነበር ያገኙት	5. ከሚዲያዎች TV, radio 6. ጤና ጣቢያ 7. የጤና ኤክስቴንሽን 8. ሌላ ከላ ይጠቀስ	
3	በነብሰ ጡርነት ሆነ በድህረ ወሊድ ወቅት ለእናቶች ስለሚሰጡ አገልግሎት መረጃው ነበሮት	3. አዎ 4. አልነበረኝም	መልሶ አልነበረኝም ከሆነ ወደ ጥያቄ 6 ይሻገሩ
4	መልሱ አዎ ከሆነ ቢያንስ በእናትነት ወቅት ከሚሰጡ አገልግሎቶች መካከል ሁለቱን መጥቀስ ችለው ነበር	3. አዎ 4. አልቻሉም	✓ ANC ✓ Clean and safe delivery ✓ PNC ✓ Immunization ✓ Health education and counseling
5	መልሶ አዎ ከሆነ በነፍሰጡርነት ግዜ እናት ምን ያህል ቅድመ ወሊድ ክትትል ማድረግ አለባት ይላሉ	6. አንድ ግዜ 7. ሁለት ግዜ 8. ሶስት ግዜ 9. አራት ግዜ 10. ሌላ ካለ ይጠቀስ	
6	የቅድመ ወሊድ ክትትል መልካም የሆነ የወሊድ ወጤት እንዲኖር ይረዳል ይላሉ	3. አዎ 4. አይደለም	
7	በባለሞያ የታገዘ ወሊድ ድንገተኛ የሆኑ ችግሮች በእናትየው እና በልጁ ላይ እንዳይከሰት ይረዳል ይላሉ	3. አዎ 4. አይደለም	
8	ባህለዊ አዋላጆች ከሰለጠኑ የጤና ባለሞያዎች እኩል ወሊድን ለማገዝ ብቁ ናቸው ይላሉ	3. አዎ 4. አይደሉም 5. አላውቅም	
9	በቤት ውስጥ የሚከናወን ወሊድ የእናቶችን እና የህፃናትን አደጋ ይጨምራል ይላሉ	3. አዎ 4. አይጨምርም	
10	በወሊድ ግዜ የሚኖረው ውጤት በእናትየው የአካል ብቃት ብቻ ይወሰናል በሚለው ይስማማሉ	3. እስማማለው 4. አልስማማም	
11	እናቶች ከወሊድ በኋላ የጤና ክትትላቸውን መቀጠል አለባቸው ይላሉ	3. እስማማለው 4. አልስማማም	
የከተማ ጤና ኤክስቴንሽን ፕሮግራም ላይ ተጠያቂው ያለውን መረጃ በተመለከተ			
12	ከዚህ በፊት ስለ ከተማ ጤና ኤክስቴንሽን ፕሮግራም ሰምተው ያውቃሉ	3. አዎ 4. አላውቅም	መልሶ አላውቅም ከሆነ ወደ ክፍል 2 ይሂዱ
13	መልሱ አዎ ከሆነ ተጠያቂዋ ቢያንስ በፕሮግራሙ ስር ካሉት ሁለቱን ፓኬጆች መጥቀስ ችለው ነበር	3. አዎ 4. አይደለም	✓ Hygiene and environmental sanitation ✓ Family health care ✓ Disease prevention and control

14	የትኛውን የጤና ኤክስቴንሽን ባለሞያ ተግባር ነው በይበልጥ በቤት ለቤት ጉብኝቷ ወቅት የሚታዘቡት	5. የጤና ትምህርት 6. የቤት ለቤት ጉብኝት 7. ሪፈራል 8. ሌላ ከጤና ተቋም ውጭ የሚሰጡ አገልግሎቶች ለምሳሌ ቫይታሚን እና ፀረ ትላትል	Outreach service- like vitamin A and deworming
15	የከተማ ጤና ኤክስቴንሽን መሰረታዊ በሆኑ የእናቶች ጤና ክብካቤ አገልግሎት የፍላጎት ባህሪ ላይ ለውጥ ያመጣል ብለው ያስባሉ	3. አዎ 4. አያመጣም	
16	ነፍሰጡር ወይም አራስ በነበርሽባቸው ወራት የጤና ኤክስቴንሽን ባለሞያ አስፈላጊ በሆኑት የእናቶች የጤና ክብካቤ ላይ ትምህርት አጊንተሽ ነበር	3. አዎ 4. አላገኘውም	

ክፍል ሶስት፡ አስፈላጊው የሆኑ የእናቶች ጤና ክብካቤ አገልግሎት አጠቃቀምን በተመለከተ

Q.no	List of inquiries	Respective response	Remark
1	በዚህ ሁለት ዓመት ውስጥ የመጨረሻሽ እርግዝና የታቀደ ነበር	3. አዎ 4. አይደለም	
2	መልሶ አዎ ከሆነ እርግዝና በሁለታችሁም ውሳኔ የተከናወነ ነበር	3. አዎ 4. አይደለም	
3	በዚህ ሁለት ዓመት ውስጥ ነብሰጡር በነበርሽበት ግዜ ቅድመ ወሊድ ክትትል ነበረሽ	3. አዎ 4. አልነበረኝም →	መልሶ አልነበረኝም ከሆነ ወደ ጥያቄ 7 ይሻገሩ
4	መልሶ አዎ ከሆነ ነፍሰጡር በነበርሽ ግዜ ለቅድመ ወሊድ ክትትል ጤና ተቋም ምን ያህል ግዜ አደረግሽ	6. አንድ ግዜ 7. ሁለት ግዜ 8. ሶስት ግዜ 9. አራት ግዜ	
5	የቅድመ ወሊድ ክትትልሽን የጀመርሽው መቼ ነበር	4. በአራት ወር ውስጥ 5. ከ6 ወር እስከ 8 ወር ባለው ግዜ 6. ከ8 እስከ ወሊድ ባለው ግዜ	
6	የቅድመ ወሊድ ክትትል በምታደርጊ ወቅት የጤና ባለሞያዎች በጤና ተቋም ስለ አደገኛ የእርግዝና ግዜ ምልክቶች ምክር ሰጥተውሽ ነበር	3. አዎ 4. አልሰጡኝም	
7	በወቅቱ አንድ ወይም ምንም ዓይነት ክትትል ካልነበረሽ ዋናው ምክንያትሽ ምን ነበር	6. ምን ያህል ክትትል እንደሚያስፈልግ መረጃው አልነበረኝም 7. ጤና ጣቢያው ዕሩቅ ስለነበር 8. በጤና ጣቢያው የሚሰጠው አገልግሎት ጥራት ላይ ጥርጣሬ ስለነበረኝ 9. በወቅቱ በአከባቢዬ ባህላዊ አዋላጆች ስለነበሩ ነሱን አገልግሎት ተጠቀምኩ 10. ሌላ ካለ ይጠቀስ	
8	በአቅራቢያው ካለው ጤና ጣቢያ ለመድረስ ምን ያህ ደቂቃ ይፈጅቦታል		
9	በጤና ተቋም አገልግሎት በተጠቀምሽ ወቅት ያጣሽው ህፃን ወይም ያጋጠመሽ ችግር ነበር	3. አዎ	

		4. አልነበረም	
10	ቅድመ ወሊድሽን ክትትልሽ የት ነበር	4. ጤና ጣቢያ 5. የመንግስት ሆስፒታል 6. የግል ክሊኒክ/ሆስፒታል	
11	ወሊድሽን ያደረግሽው የት ነው	3. በጤና ተቋም 4. በቤት ውስጥ 5. ሌላ ካለ ይጠቀስ	
12	የመጨረሻውን ልጅሽን በዚህ ሁለት ዓመት ውስጥ በቤት ውስጥ ከሆነ የወለድሽው ዋናው ምክንያቱ ምንድን ነበር	ሀ. ምጡ ድንገተኛ ስለነበር ለ. በአቅራቢያ ከሚገኘው ጤና ጣቢያ የሚሰጠው አገልግሎት ላይ አለመተማመን ሐ. አገልግሎቱን ለመጠቀም ክፍያ ይኖረዋል የሚል ስጋት ስለነበረኝ መ. የትራንስፖርት ችግር ስለነበር ሠ. በሰለጠነ ባለሞያ የታገዘ ወሊድ ላይ ግንዛቤ ስላልነበረኝ ረ. ሌላ ካለ ይጠቀስ	
13	የመጨረሻው ልጅሽን ስትገላገዪ የነበረውን ሁኔታ እንዴት ትገልጪዋለሽ	ሀ. እኔም ልጄም ምንም ችግር አላጋጠመንም ለ. ስወልድ ችግር አጋጥሞኝ የበረ ቢሆንም ግን በባለሞያ እገዛ ተገደርጎልኝ በኔም በልጄም ላይ ምን ጉዳት አልደረሰብንም ሐ. እቤት ስለወለድኩ ከፍተኛ ችግር አጋጥሞኝ ነበር መ. አላስታውስም	
14	ከወለድሽ በኋላ የድህረ ወሊድ ክትትል አድርገሽ ነበር	1. አዎ 2. አላደረኩም	መልሶ አላደረኩም ከሆነ ወደ ክፍል 3 ይሂዱ
15	ከወለድሽ በኋላ የመጀመሪያውን ድህረ ወሊድ ክትትልሽን ያደረግሽው መቼ ነበር	1. በወለድኩኝ በ24 ሰዓት ውስጥ 2. በወለድኩኝ በ3ኛው ቀን 3. በሰባተኛው ቀን 4. በ45ኛው ቀን 5. አልተገለፀም	
16	የድህረ ወሊድ ክትትልሽን ያደረግሽው የት ነበር	1. ጤና ጣቢያ 2. የግል ሆስፒታል 3. የመንግስት ሆስፒታል	

ክፍል ሶስት፡ የከተማ ጤና ኤክስቴንሽን ፕሮግራም በሰረታዊ በሆኑ የእናቶች ጤን ክብካቤ አጠቃቀም ላይ ያሳደረውን ተፅኖ በተመለከተ

ተ.ቁ	የጥያቄዎች ዝርዝር	የሚሰጡ ምላሾች	ምርመራ
1	ከዚህ በፊት በከተማ ጤና ኤክስቴንሽን ፕሮግራም ውስጥ ተሳትፈው ያውቃሉ	1. አዎ 2. አላውቅም	
2	መልሱ አዎ ከሆነ የጤና ኤክስቴንሽን ፕሮግራም የሞዴል አባወራ ስልጠና ወስደው ነበር	1. አዎ 2. አልወሰድኩም	

3	ከጤና ኤክስቴንሽን ባለሞያ የእናቶች ጤና ክብካቤ ላይ ትኩረት ያደረገ ስልጠና ተሰጥቶሽ ነበር	1. አዎ 2. አልተሰጠኝም	
4	የጤና ኤክስቴንሽን ባለሞያ በነፍሰጡር ግዜ ሊከሰት ስለሚችል የአደጋ ግዜ ምልክቶች ምክር ሰጥታሽ ነበር	1. አዎ 2. አልሰጠችኝም	
5	መልሶ አዎ ከሆነ ተጠያቂዋ ቢያንስ ሁለት በእርግዝና ግዜ የሚከሰቱ የደረጋ ግዜ ምልክቶች መጥቀስ ችላ ነበር	1. አዎ 2. አልቻለችም	✓ ከማህፀን ደም መምጣት ✓ ተደጋጋሚ የሆነ ማቅለሽለሽ እና ማስታወክ ✓ የልጅ እንቅስቃሴ መገበብ ወይም አለመኖር ✓ ተደጋጋሚ የሆነ እራስ ምታት እና ሆድ ቁርጠት ✓ የእይታ መዛባት ✓ የአተነፋፈስ ችግር ✓ ከማህፀን ፍሳሽ መውጣት
6	የጤና ኤክስቴንሽ ባለሞያ ነፍሰጡር በነበርሽ ግዜ ቤት ለቤት ጉብኝት አድርጋልሽ ነበር	1. አዎ 2. አላደረገችም	መልሶ አላደረገችም ከሆነ ወደ ጥያቄ 9 ይሻገሩ
7	በእርግዝና ግዜ የጤና ኤክስቴንሽን ባለሞያ የጎበኘችሽ ከሆነ በምን ያህል ግዜ ነበር ጉብኝቷ	1. በሳምንት አንድ ግዜ 2. በወር ሁለት ግዜ 3. በየወሩ 4. በየሶስት ወሩ 5. በአራት ወር እና ከዚያ በላይ	
8	ለመጀመሪያ ግዜ የጤና ኤክስቴንሽን ባለሞያ ነፍሰጡር በነበርሽበት በስንተኛው ወርሽ ላይ ነበር የጎበኘችሽ		
9	ለመጀመሪያ ግዜ የጤና ኤክስቴንሽን ባለሞያ በነፍሰጡር ግዜ ግቡኝት ወቅት ስለ እናቶች ጤና ክብካቤ አገልግሎቶችን አስተዋውቃሽ ነበር	1. አዎ 2. አይደለም	
10	የመጨረሻው ልጅሽን የወለድሽው በጤና ተቋም ከሆነ ይህንን ውሳኔ የወሰንሽው የጤና ኤክስቴንሽን ባለሞያ በጤና ተቋም ስለሚደረግ ወሊድ ጥቅም ምክር ስለሰጠችኝ ነው ይላሉ	1. አዎ 2. አይደለም	መልሶ አይደለም ከሆነ ወደ ጥያቄ 12 ይሻገሩ
11	መልሶ አዎ ከሆነ ተጠያቂዋ ቢያንስ ሁለት በጤና ተቋም የሚደረግ ወሊድ ጥቀሞች መጥቀስ ችለው ነበር	1. አዎ 2. አልቻለችም	- ንፁህ እና ደህንነቱ ለተጠበቀ ወሊድ - የእናቶችን እና ህፃናትን ሞት ለመከላከል - አላስፈላጊ የሆነ ኢንፌክሽን እና ያልተጠበቁ አደጋዎችን ለማስወገድ - እናትየው እና ህፃናቱን ዘላቂ በሆነ የጤና አጠባበቅ ስርአት ውስጥ እንዲካተቱ ለማድረግ - በእናትነት ወቅት ሊከሰት የሚችሉ ችግሮችን ለመቆጣጠር እና እርምጃ ለመውሰድ

			- ለእናትየው ብሎም ለቤተሰቡ የተሻለ ጤና ባህሪያትን እና ተግባሮችን ለማስረፅ የተለያዩ የጤና ጉዳዮችን ላይ የጤና ትምህርት ብሎም ምክር ለመስጠት
12	በጤና ተቋም የወለዱት በጤና ኤክስቴንሽን ባለሞያዋ ተጾኖ ከሆነ የጤና ኤክስቴንሽን ባለማያዋ የወሊድ ዝግጅት እንድታደርጊ አድርጋ ነበር	1. አዎ 2. አላደረገችም	
	መልሶ አዎ ከሆነ ቢያንስ ተጠያዋ ሁለት ያደረገቻቸውን ዝግጅቶች መናገር ችለው ነበር	1. አዎ 2. አልቻሉም	5.በመጀመሪያ የቅድመ ወሊድ ክትትል እንዳለኝ አረጋገተጠች 6.በቤት ደረጃ ለእናትየውም ሆነ ለልጁ ሊደረጉ የሚገቡ የምግብም ሆነ የአልባሳት ብሎም የቤት አያያዝ ላይ ዝግጅት እንዳደርግ ረድታኛለች 7.በወሊድም ሆነ ከዚያ በኋላ ለሚፈጠሩ አደጋዎች ላይ የሰለጠነ ባለሞያ እንደሚያስፈልግ ምክር ሰጥታኛለች 8.በጤና ተቋም መውለድ ለሚወለደው ህፃን ደህንነት ጥቅሙ ላይ ትምህርት ሰጥታኛለች 9.በጤና ተቋም ብቻ የሚሰጡ የጤና አገልግሎቶች ለምሳሌ ክትባት እና የህፃናት እድገት ክትትል እና ሌሎች የጤና አገልግሎቶች ላይ ምክር ሰታኝ ነበር
13	በአከባቢሽ የጤና ኤክስቴንሽን ባለሞያ በቤት ውስጥ የሚደረግ ወሊድን ለመለየት የምታደርገውን ጥረት ታስታውሻለሽ	1. አዎ 2. አላስታውስም	መልሶ አዎ ከሆነ ወደ ጥያቄ 16 ይሂዱ
14	ባሳለፍነው ሁለት ዓመት ውስጥ በምትኖሪበት አከባቢ በቤት ውስጥ የተደረገ ወሊድ ነበር	1. አዎ 2. አልነበረም	
15	መልሶ አይደለም ከሆነ ይህ የባህል ለውጥ የመጣው በጤና ኤክስቴንሽን ፕሮግራም አማካኝነት ነው ይላሉ	1. አዎ 2. እይደለም	
16	መልሶ አዎ ከሆነ እነዛ ሰዎች በበቂ ሁኔታ በጤና ኤክስቴንሽን ፕሮግራም ውስጥ ተሳትፎ ስላላደረጉ ነው ይላሉ	1. አዎ 2. አይደለም	
17	በድህረ ወሊድ ግዜ ጤና ኤክስቴንሽን ባለማዋ ክትትል ታደርግልሽ ነበር	1. አዎ 2. አይደለም	
18	መልሶ አዎ ከሆነ በምን ህል ግዜ ነበር ክትትሏ	1. በመጀመሪያው ሳምንት 2. በ15ኛው ቀን 3. ወር በገባ	

19	በአራስነትሽ ግዜ የጤና ኤክስቴንሽን ባለሞያ እንዴት ለህፃኑም ሆነ ለእናትየው ስለሚደረጉ ክብካቤዎች ላይ ምክር ሰታሽ ነበር	1. አዎ 2. አይደለም	
20	በቤት ውስጥ ከእርሶ ውጪ ሞዴል ስልጠና የወሰደ ሰው አለ	1. አዎ 2. የለም	
21	ተጠያቂዋ በምትኖርበት አከባቢ ወይም መንደር ምን ያህል ሞዴል ስልጠና ያጠናቀቁ ቤቶች አሉ		ይህ ጥያቄ ጠያቂው በመንደሩ ላይ ከተመደቦችው የጤና ኤክስቴንሽን ባለሞያ በመጠየቅ የሚሞላ ይሆናል
22	በአከባቢሽ የተመደበችውን የሴት የልማት ቡድን መሪ ያውቂታል	1. አዎ 2. አላውቅም	
23	ለጥያቄ 22 መልሶ አዎ ከሆነ ነፍሰጡር በነበርሽበት ወቅት በቤት ለቤት ትጎበኝሽ ነበር	1. አዎ 2. አይደለም	
24	ለጥያቄ 23 መልሶ አዎ ከሆነ በምን ያህል ግዜ ተጎበኝሽ ነበር	1. በየወሩ 2. በሶስት ወር አንዴ 3. በየ6 ወሩ	
25	እርሶ ሴቶችን ማእከል ባደረግ ነለ5 ወይም የሴት የልማት ቡድን ውስጥ ታቅፈው ነበር	1. አዎ 2. አይደለም	
26	መልሶ አዎ ከሆነ በዚህ በፊት በአደረጃጀታችሁ ስለ እናቶች ጤና ላይ ውይይት አድርጋችሁ ታውቃላችሁ	1. አዎ 2. የለም	
27	ከዚህ በፊት የጤና ኤክስቴንሽን ባለሞያ ነፍሰጡሮችን በመለየት እና በቤት ውስት የሚደረግ ወሊድን ለመከላከል በምታደርገው ጥረት ውስጥ ተባብረው ያውቃሉ	1. አዎ 2. የለም	