PREGNANCY INTENTION AND ASSOCIATED MATERNAL BEHAVIOR DURING PREGNANCY AMONG PREGNANT WOMEN IN HADIYA ZONE, SOUTHERN ETHIOPIA

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A RESEARCH THESIS SUBMITTED TO JIMMA UNIVERSITY, INSTITUTE OF HEALTH, FACULTY OF PUBLIC HEALTH, DEPARTMENT OF POPULATION AND FAMILY HEALTH IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR MASTERS OF PUBLIC HEALTH IN REPRODUCTIVE HEALTH (MPH/RH)

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Jimma, Ethiopia

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Abstract

Background: *When pregnancy is intended, there is greater opportunity for women to adopt or maintain healthy behaviors. Pregnancy that is unintended is tends to result in unhealthy behaviors or continue unhealthy behaviors or exposures during pregnancy. Unintended pregnancy has direct relation with poor utilization of maternal health care services and also associated with unhealthy behaviors during pregnancy. Few studies have examined the association between unintended pregnancy and maternal health behaviors during pregnancy in developing countries including Ethiopia.*

Objective: *To determine pregnancy intention and associated maternal behaviors during pregnancy among pregnant women in Hadiya zone, Southern Ethiopia, 2017*

Methods: *Community based cross sectional study design using both quantitative and qualitative data collection methods was employed in Hadiya zone from March,13to April,13, 2017. A structured interviewer administered questionnaire for quantitative and FGD guide and in-depth interview guide for qualitative was used to collect data. Descriptive, Bivariate and multivariate logistic regression was employed to identify the independent effect of pregnancy intention on the outcomes of interest after controlling other possible confounding variables. The qualitative data was transcribed and translated and analyzed using manually.*

Results: *Of 770 sampled mothers, data were collected from 748 mothers giving a response rate of 97%. More than one third (36.2%) women reported unintended pregnancy. With regards to maternal health behavior, 73.1% of women received at least one antenatal care visit during in the recent pregnancy. Only 14.6% start first antenatal visit in the first four months and the rest 85.4% late ANC initiation. And 9.5% of women had used substance during recent pregnancy. Unintended pregnancy was significantly associated with use of antenatal care services and late initiation of antenatal care. Women with unintended pregnancy were 69% times less likely to receive ANC (AOR = 0.31, 95% CI; 0.21 – 0.46); were four times more likely to late ANC initiation (AOR = 4.40, 95% CI; 1.70 – 11.40) and were three times more likely to use substance (AOR = 3.01, 95% CI; 1.81 – 5.02) during pregnancy as compared to women with intended pregnancy after controlling other possible variables. The other variables associated with ANC use and substance use during pregnancy includes occupation, wealth index, exposure to health information, participation in household decision, distance from health facility and gravidity.*

Conclusion and recommendation: *This study finding showed an association between pregnancy intention and maternal behavior during pregnancy. Women with unintended pregnancy less likely receive recommended ANC and more likely expose themselves to risky behavior like substance use. To understand this relationship between pregnancy intention maternal behavior during pregnancy, longitudinal studies are suggested.*

Keywords*: Unintended pregnancy, Maternal behavior, Antenatal care, Substance use, Hadiya Ethiopia*

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Abbreviations

ANC	Antenatal Care
AOR	Adjusted Odd Ratio
CDC	Centers for Disease Control and prevention
CI	Confidence Interval
COR	Crude Odd Ratio
DHS	Demographic Health Survey
EDHS	Ethiopian Demographic Health Survey
FGD	Focused Group Discussion
HDAs	Health Development Armies
HEWs	Health Extension Workers
IQR	Interquartile Range
MCH	Maternal and Child Health
NGO	Non-Governmental Organization
OR	Odd Ratio
PMA	Performance, Monitoring and Accountability
PRAMS	Pregnancy Risk Assessment Monitoring System
SD	Standard Deviation
TBA	Traditional Birth Attendant
USA	United States of America
WHO	World Health Organization

1. Introduction

1.1 Background

Pregnancy is a happy event for the women, husband, families, and community when it is wanted or intended. But millions of women around the world become pregnant unintended. Unintended pregnancy is when it is either mistimed (that is, they occurred earlier than desired) or unwanted (that is, they occurred when no children, or no more children were desired) at the time of conception. Intended pregnancy is a pregnancy that occurs with the willingness of couples, and is desired at the time of conception (1).

Women in across the world are facing unintended pregnancies irrespective of their development status. Worldwide, approximately 213 million pregnancies occurred annually, out of whom, 85 million (40%) were unintended pregnancy. Unintended pregnancy is 36% higher in developing country than developed country. In Africa from a total of 53.8 million pregnancies, 35%were unintended pregnancy in the same year (2). According Guttmacher Institute report in Ethiopia, in 2014 about 4.93 million pregnancies occurred annually, out of whom, 1.9 million (38%) were unintended pregnancy (3). The Performance, Monitoring and Accountability (PMA 2020) study report in 2014 also showed that the magnitude of unintended pregnancy is even higher 42% (4).

Approximately 830 women die from preventable causes related to pregnancy and delivery around the world every day. Almost all maternal deaths (99%) occur in developing countries. More than half of maternal deaths occur in sub-Saharan Africa (5). In Ethiopia the maternal mortality ratio was 412 per 100,000 live births according to EDHS 2016 (6).One target under Sustainable Development Goal (SDG) 3 is to reduce the global maternal mortality ratio to less than 70 per 100 000 births, with no country having a maternal mortality rate of more than twice the global average (7). Consequently, reducing maternal mortality is closely related to prevention of unintended pregnancy which causes to induced abortion and which further leads to maternal morbidity and mortality. Preventing unintended pregnancies through effective family planning could avert about 30% of maternal deaths (8).

Antenatal care provides an opportunity to deliver interventions for providing health education, improving maternal nutrition and encouraging skilled attendance at birth. WHO recommends that adequate antenatal care for a normal pregnancy that has no complications should comprise

four ANC visits, with the first occurring within the first trimester (9). Early enrollment in ANC is a widely accepted and recommended behavior for pregnant women to improve pregnancy outcome and late enrollment is viewed as a behavior that places women at increased risk of poor pregnancy outcome.

Unintended pregnancy has a public health impact. The implications of unintended pregnancy are substantial high and has a great impact on the health of all fecund sexually active women in both developed and developing countries. It has negative effects on maternal outcomes as well as maternal and child well-being and can lead to unwanted birth or abortion which could be unsafe(2). And also, unintended pregnancy is associated with different maternal behaviors during pregnancy like poor maternal health services and health risky behaviors like substance use and abortion attempt.

1.2 Statement of problem

About eighty-five million unintended pregnancies occurred worldwide annually. Of these, 50 percent ended in abortion, 13 percent ended in miscarriage, and 38 percent resulted in an unplanned birth. In less developed regions from 1000 pregnancies 57 of them were unintended and the pregnancies end up with unplanned birth, abortion, and miscarriage (2). The situation is not different from less developed countries in Ethiopia; women suffer from problem of unintended pregnancy. Regardless of an increase in use of modern contraceptive among married women over 35% in 2016 (6), nonuse of family planning methods among women who wish to avoid pregnancy continues to lead to high levels of unintended pregnancy. In Ethiopia, in 2014 about 1.9 million (38%) were unintended pregnancy. About 620,300 (13%) pregnancies ended in abortion (3).

Unintended pregnancies that lead to induced abortions can have deleterious consequences for women living in countries where abortions are generally unsafe (10). It results in unsafe abortion, that is the one of direct cause of maternal mortality and morbidity (11). About half of unintended pregnancies in developing countries result in abortion, and unsafe abortion is a leading cause of maternal death (1).

Pregnancy is a crucial time to promote healthy behaviors and parenting skills. When pregnancies are intended, there is greater opportunity and motivation for women to adopt or maintain healthy

behaviors, often leading to improved birth and infant outcomes. Pregnancies that are unintended are more likely to result in unhealthy behaviors or continue unhealthy behaviors or exposures during pregnancy (12). Although studies conducted in developed countries, limited findings from developing country studies suggested that unintended pregnancy has association with unhealthy maternal behaviors during pregnancy such as use illicit drugs, smoke, be exposed to environmental smoke and drinking alcohol and (13). And also unintended pregnancy has direct relation with poor utilization of maternal health care services during pregnancy like: delayed initiation of, or low attendance at antenatal care visits (14–16).

Besides, women with unintended pregnancies have less attention to pregnancy related complications and have anxiety during pregnancy; low social support and lower scores for self-care behaviors such as use of supplements (folic acid or multivitamin), vaccination and nutrition (17). Women attempt unintended pregnancy with to induced abortion. For example; Study in Sweden showed that of women with unplanned pregnancies, 32% had considered an induced abortion (18). Consequently, these problems increase obstetric complications such as unfavorable pregnancy outcome, maternal morbidity and mortality, premature birth, low birth weight, neonatal death, and infant abuse (12).

There are few literatures that focuses on the pregnancy intention and associated maternal behavior in developing countries, particularly in Ethiopia (14). The existing literatures in Ethiopia have addressed mainly prevalence and associated factors of unintended pregnancy. So far, there is a literature on unintended pregnancies and the use of maternal health services (14) but other related maternal behaviors like abortion attempt, substance use and the like during pregnancy were not addressed. Thus, this study aimed to examine whether pregnancy intention influences maternal behavior during pregnancy.

2. Literature review

All women should have the opportunity to make decisions about their own reproductive health and if and when they desire pregnancy. Unintended pregnancy remains a serious health and social problem in worldwide, and has been associated with different health, economic, and social problems which have impact on family, community and country as a whole.

2.1 Magnitude of Unintended Pregnancy

Globally, 40 percent of pregnancies in 2012 were unintended. The percent of unintended pregnancies among all pregnancies in 2012 were 35% for Africa, 38% for Asia, 45% for Europe, 56% for Latin America & Caribbean, 51% for North America and 37% for Oceania (2). Studies conducted in Ecuador, Brazil, Nepal, rural Ghana and Tanzania revealed that the overall prevalence of unintended pregnancy was 62.7%, 55.4%, 54.5%, 70% and 45.9% respectively (19–23).

About one third pregnancies were unintended in Ethiopia. According studies conducted in different parts of Ethiopia; at Ganji Woreda, Gelemso General Hospital, Duguna Fango Woreda, Hosanna town and Debre Markos revealed that 36.5%, 27.1%, 36.6%, 34% and 32.9% of pregnancies among pregnant married women were unintended respectively (24–28). Similarly, another study conducted in southwestern Ethiopia showed that more than one third (35%) of women reported that their most recent pregnancy was unintended (14).

2.2 Pregnancy intention and Associated Maternal Behaviors

Pregnancy intention status is an important determining factor of pregnancy related behavior.

Pregnancy Intention and ANC utilization

Unintended pregnancy can affect maternal behavior during pregnancy and after pregnancy. These behaviors affect health of mother and baby negatively. Unintended pregnancy is negatively associated with utilization and early initiation of ANC services. A recent study in Iran showed that women with unwanted pregnancies had significantly lower tendencies to do prenatal care (29). Multi-country analysis of DHS in 2016 in sub-Saharan Africa showed that unintended pregnancies were strongly associated with late ANC attendance and fewer visits women made in the pooled analysis(30).

Meta-analysis conducted in 2013 on effects of pregnancy intention on the use of antenatal care services indicated that the mother with unintended pregnancy were delayed to start ANC when compared to those mothers with intended pregnancy with OR 1.42 (15). Kenya DHS data in 2016 revealed that women with unwanted pregnancy are less likely to timely initiate ANC and they have least number of ANC visit unlike women with intended pregnancy (31). Similarly, another study in USA illustrated that women when women have unintended pregnancy they do not start ANC visit at appropriate time and they have few visits that is below WHO recommendation(16).

After controlling for socio-demographic variables, study in USA found that mothers with unintended pregnancies were more likely to report inadequate daily consumption of folic acid before pregnancy compared to mothers with intended pregnancies(16). Study from Iran showed that women with unintended pregnancies had significantly lower scores for use of supplements, vaccination, appropriate nutrition, appropriate clothing and attention to personal health compared with intended pregnancy (17).

Pregnancy Intention and Tobacco Use

Mothers with unintended pregnancies are also more likely to engage in unhealthy behaviors such as smoking during pregnancy after they knew they were pregnant(10, 29). Study in USA found that women who had intended pregnancies were twice as likely smoke during pregnancy, compared to women who had intended pregnancy (13). Pregnancy Risk Assessment Monitoring System (PRAMS) survey in USA showed that when compared to women with intended pregnancies, mothers with unwanted pregnancies were more likely (AOR 2.03, 95% CI; 1.5–2.9) to smoke prenatally (16). Another study from USA indicated that women with unintended pregnancies were more likely (AOR = 5.82; 95% CI; 2.34–14.47) than those with intended pregnancies to continue or initiate illicit drug use (13).

Pregnancy Intention and Stress

According to study conducted in Alabama showed that mothers who had unintended pregnancy were more likely to experience stressful events such as divorce, job loss, arguments, physical fights, and incarceration than mothers who intended pregnancy (32).

Pregnancy Intention and Alcohol Use

Alcohol use during pregnancy is a major preventable cause of birth defects and developmental disabilities. In-utero alcohol exposure can lead to fetal alcohol spectrum disorders (FASDs), which include fetal alcohol syndrome, alcohol-related birth defects, and alcohol-related neurodevelopmental disorder (33).

Study from USA indicated that those whose pregnancies were unwanted were significantly more likely to report binge drinking during pregnancy compared to women with intended/mistimed pregnancies (AOR = 1.55, 95% CI; 1.20 –1.99) (34). According to study conducted in Maryland found that women with unwanted pregnancies were twice (AOR = 2.08, 95% CI; 1.11–3.90) more likely to use alcohol than wanted pregnancy (35). And also, study from Bahr Dar city, Ethiopia shows that unplanned pregnancy was found significantly associated with alcohol consumption (36).

Unintended pregnancy and Abortion attempt

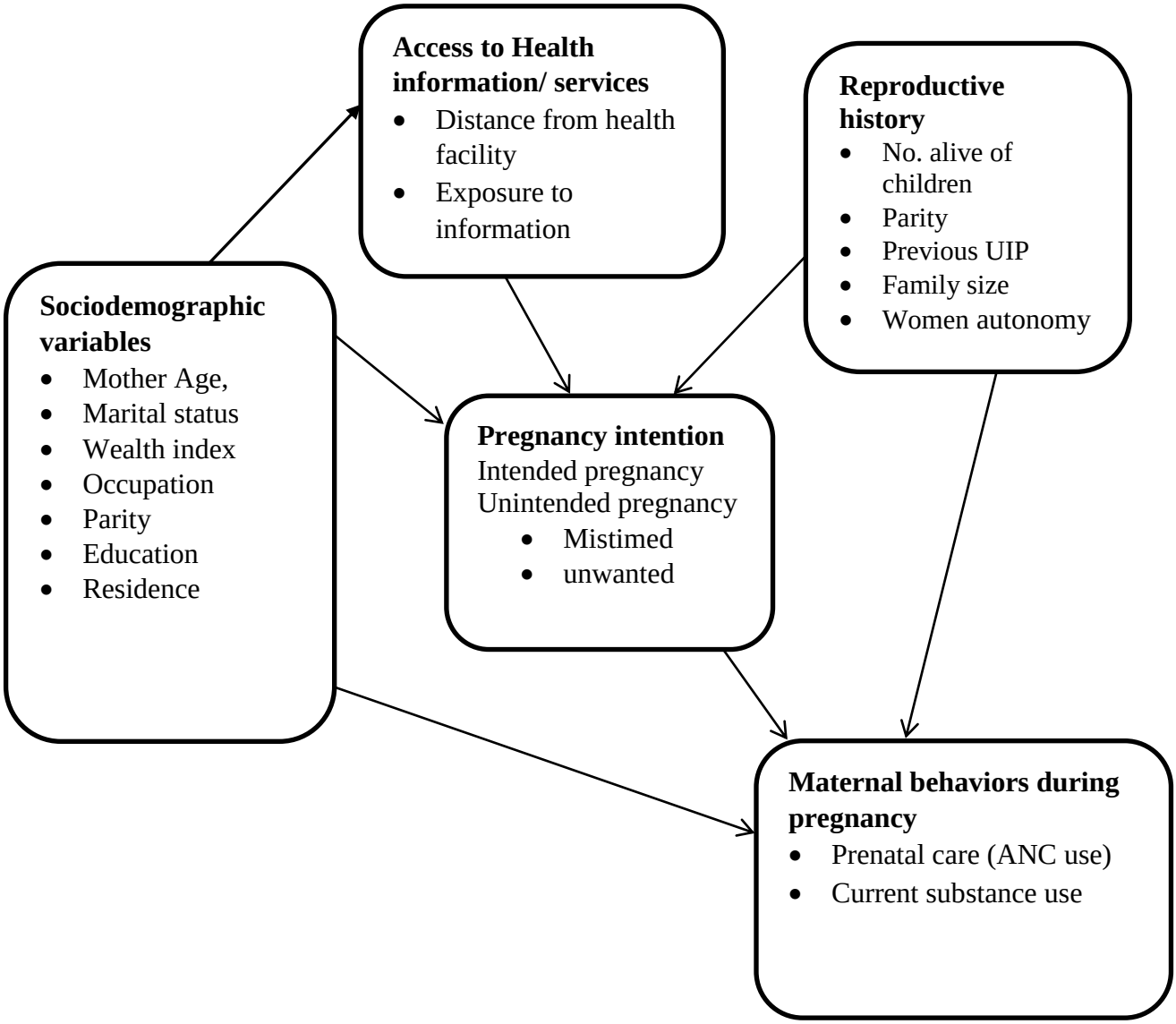
According to recent study conducted in Iran found that women with unwanted pregnancies had significantly a higher tendency for abortion attempts compared to those with wanted pregnancies (29).

Besides, although most studies from the developed countries have shown the association of pregnancy intention and maternal behaviors during pregnancy, the rare studies from developing countries have shown mixed findings.

Summary of literature review

Generally, literature review on the relationship between pregnancy intention and maternal health behaviors during pregnancy showed that there is a relatively reliable evidence of the effects of unintended pregnancy on ANC utilization and health risky behaviors like alcohol use, cigarette smoking, abortion attempt. Additionally, most of the research finding available is from the developed countries and only very few have been conducted in the developing countries. These may challenge undertaking the study in our setup.

2.3 Conceptual framework



Adapted from Gipson et al. 2008; Conceptual framework of the effects of pregnancy intention on maternal health behavior (12)

Figure 1: Conceptual framework of the effects of pregnancy intention on maternal health behavior

2.4 Significance of the study

The problem of unintended pregnancy at the community is very serious, nevertheless it is under reported since the social and cultural norms are not open to discuss on the sensitive issue of unintended pregnancies followed by abortion that cause maternal mortality.

Determining pregnancy intention and associated maternal behaviors during pregnancy among pregnant women at the community level is very crucial in designing and implementing interventions that could be tailored to women behaviors and needs, there by contributing to the attainment of the Sustainable Development Goal. This study will furnish important directions for intervention which help local health planners to critically look at the problem during their planning process. It will be useful to other researchers doing further studies on the topic in this area.

3. Objective

3.1 General objective

- To assess association between pregnancy intention and maternal health behavior during pregnancy among pregnant women in Hadiya zone, Southern Ethiopia, 2017

3.2 Specific objectives

- To determine magnitude of unintended pregnancy among pregnant women in Hadiya zone, Southern Ethiopia
- To examine the relationship between unintended pregnancy and maternal behaviors during pregnancy among pregnant women in Hadiya zone, Southern Ethiopia

4. Methods

4.1 Study area and period

The study was conducted in Hadiya zone, which was divided in to 10 rural Woreda and two administrative towns with total of 329 kebeles from which 303 of them rural and 26 of them were urban. Hadiya zone hosts a total of 1,573,841 populations with a total area of 3542.66 Sq. Km. And has a total of 346,245 reproductive age group women and an estimated 53,510 pregnant mothers. In the Zone, the contraceptive prevalence rate was 49% and ANC coverage was about 83%. Currently, health care provision within the zone was carried out through 61 health centers, 309 health posts, and 3 hospitals. There were 131 different privately owned clinics that also rendered health services to the community (37). The study was conducted from March 13, 2017 to April 13, 2017.

4.2 Study design:

A community based cross sectional study design involving both quantitative and qualitative data collection methods were employed to collect information about pregnancy intention and associated maternal behaviors.

4.3 Population

4.3.1 Source population

All pregnant women residing in Hadiya zone.

4.3.2 Study Population

For quantitative Randomly selected pregnant women in Hadiya zone who fulfill inclusion criteria.

For qualitative: Pregnant women and key informants who were not included in quantitative study

4.4 Inclusion/exclusion criteria

Inclusion criteria

- Pregnant women living in the selected kebeles for more than 6 months.

Exclusion criteria

- Respondents who are severely ill and unable to communicate

4.5 Sample size determination and sampling technique

4.5.1 Sample size for quantitative data

For objective one, Sample size was determined by using single population proportion formula by considering the following assumptions:

The prevalence of unintended pregnancy p = 35% from a study in southwestern Ethiopia (14).

d = 5% the margin of error

$Z_{\alpha/2}$ = critical value at 95% confidence interval

$$n=\frac{\left(Z_{\alpha/2}\right)^2 P(1-P)}{d^2} \qquad =\frac{(1.96)^2 0.35(0.65)}{0.05^2} \quad = 350$$

Sample size for second objective was calculated by using two population proportion formula by considering the following assumptions:

Power ($Z_{2\beta}$) =80%, $Z_{\alpha/2}$ = critical value at 95% confidence interval

P_1, P_2 = estimated population prevalence in the intended and unintended groups

$$n=\frac{\left(Z_{\alpha}+Z_{2\beta}\right)^2\{p_1(1-p_1)+p_2(1-p_2)\}}{(p_1-p_2)^2}$$

Table 1: sample size calculated by using two population proportion on significant variables

Variables	Parameters			Sample size (n)
	CI	Power	Proportion	
ANC use in intended and unintended (14)	α= 5%	β= 80%	P1= 45.3% P2= 34.9%	345
Alcohol use in unintended and intended (36)	α= 5%	β= 80%	P1= 41.7% P2= 17.6%	53

Therefore, the largest sample was 350. By adding 10% non-response rate and design effect of 2 The total sample size calculated was **770**

4.5.2 Sample size for qualitative studies

Four focused group discussions in two conveniently selected kebeles were conducted with 8-12 pregnant mothers. Mothers who were not included in quantitative study but the same as source population was included in each group. Ten in-depth interviews were conducted with key informants, two with HEWs, two with HDAs, one with Head of health facility, three with currently pregnant women and one with MCH focal persons from health center. The aim of qualitative study was to support the findings of quantitative study with triangulation of the data.

4.5.3 Sampling procedure

Multi-stage stratified sampling technique was used to identify pregnant women to be enrolled for the study. At first stage, the Hadiya Zone was stratified as rural districts (10 in number) and town administrations (2 in number, Hosanna and Shone). Then 3 rural districts were selected by simple random sampling from the 10 districts. Whereas, one town administration was included randomly from urban. At second stage, all the kebeles were selected proportionally based on the size of the kebeles per each district. List of pregnant women were identified from updated family folder of selected kebeles. Then based on the population, sample size was allocated for each selected kebeles proportionally. Finally, the required number of pregnant mothers were selected by simple random sampling method and interviewed in their home by using health extension workers.

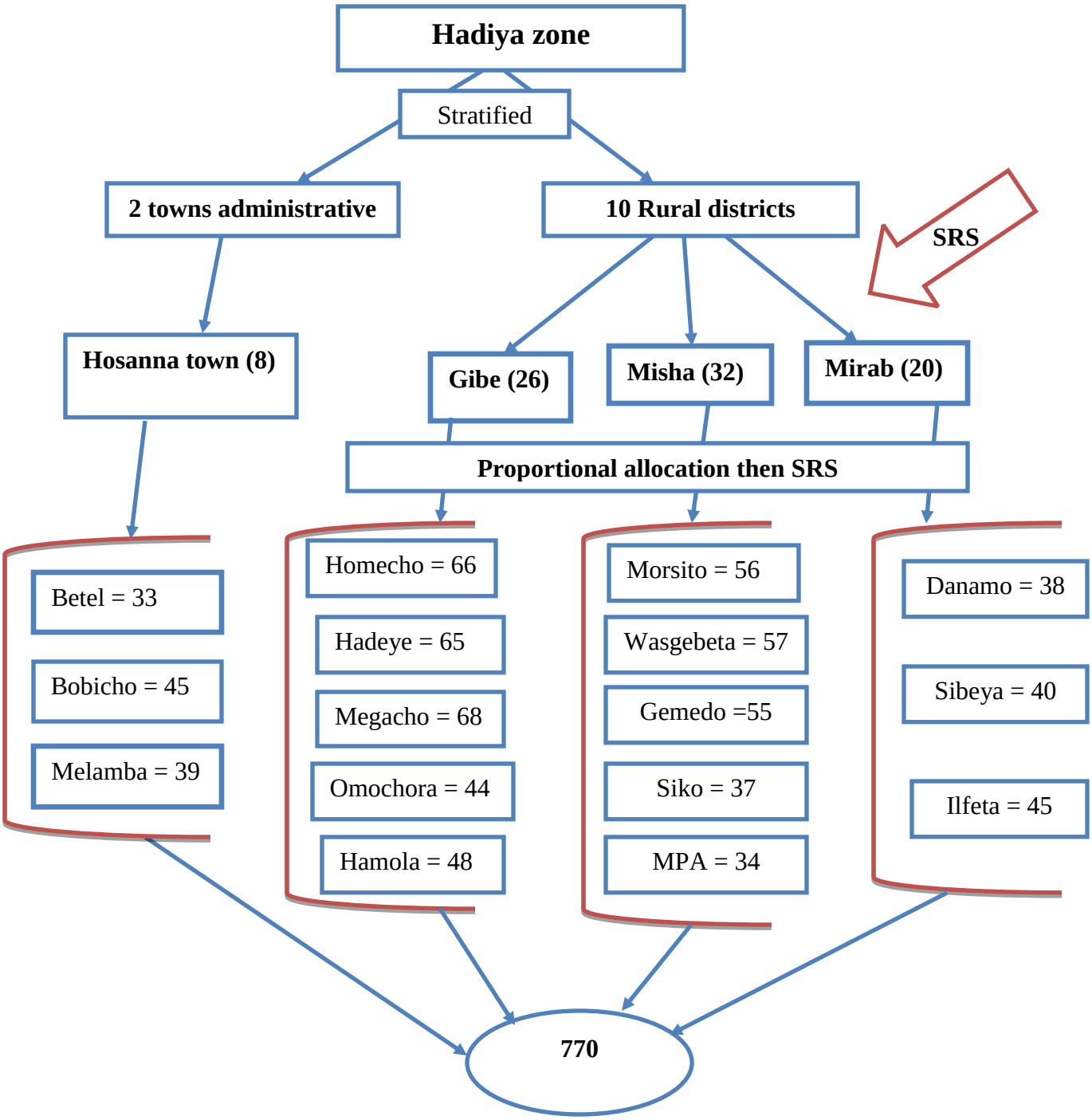


Figure 2: Schematic representation of sampling procedure

4.6 Study variables and measurements

4.6.1 Dependent variable

- Maternal health behavior
    - ANC use,
    - Substance use

4.6.2 Independent variables

Socio-economic and demographic

- Age
- Marital status
- Education of mother
- Wealth index
- Occupation
- Residence

Reproductive history

- Number of alive children
- Parity/gravidity
- Previous Unintended Pregnancy
- Family size
- Women autonomy

Access to Health information/services

- Exposure to information
- Distance from health facility

Pregnancy intention

- Intended pregnancy
- Unintended pregnancy (mistimed, unwanted)

4.6.3 Measurements

The outcomes of interest for this study was maternal health behavior during pregnancy. Maternal behavior included in this study refers use of antenatal care and substance use during pregnancy. These variables were measured and defined as follows:

ANC use: refers to use of antenatal care during this pregnancy. Women were asked whether they have used ANC during current pregnancy. The variable was measured by binary variable ‘yes’ for those who use and ‘no’ for not use. Moreover, information was collected on time of initiation of ANC visits to determine whether women started early within first trimester or initiated late in second trimester and third trimester. WHO recommends adequate care for a woman without complications should comprise four ANC visits, with the first visit should occur in first trimester or before 12 weeks of gestation but not later than 16 weeks (9).

Substance use: use substance during recent pregnancy like alcohol use, tobacco /cigarette smoking, chat chewing. It was measured by binary variable 'yes' for those who use any one substances mentioned and 'no' for not use.

The main explanatory variable was Pregnancy intention, which was measured by asking a woman's desire about her pregnancy at the time she became pregnant. At the time, you became pregnant did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all? The answers were; 1) wanted then intended, 2) wanted to happen later mistimed, 3) did not want at all unwanted. Unwanted and mistimed pregnancies were then grouped together as unintended pregnancies.

Other independent variables included were age (coded as 15–24, 25–34 and 35–49), women's education (coded as no education, primary and secondary and above), women's occupation (coded as housewife, government employee and others), place of residence, wealth index, exposure to mass media, distance from health facility, women's participation in household decision, gravidity, family size.

Wealth index: was used as a measure of socio-economic status of mothers. It was calculated from ownership of the following household resources: radio, television, electricity, bicycle, motorcycle, car, type of floor, type of wall material, type of roof material, toilet facilities, farm land, and of domestic animals such as cattle, sheep, goats, and mule. Five principal components with eigenvalues greater than one were summed to obtain wealth index values after Principal Component Analysis (PCA) was run (38,39). The resulting index was then divided into three categories representing poor, middle and wealthy.

Distance from health facility: women were asked travel time in (hours or minutes) to walk on foot from their home to the nearest health facility. Also, women were asked whether they have exposure to mass media or not during pregnancy. Gravidity was categorized from self-report of total pregnancy as gravida 1, gravida 2– 4 and gravida 5+.

Furthermore, women's participation in decision making was measured by composite index composed of eight questions. The women were asked "who in her family usually has the final say on the following decisions. 1) use family planning, 2) number of children, 3, obtaining health care for yourself, 4) visits to family or relatives and 5) large household purchases (40,41). Then a

composite index of women's autonomy in household decision making, each autonomy indicator was coded as a (0, 1) binary variable where 0 represents a low level of decision making and category 1 represents a relatively high level of decision making (decisions were made by either woman alone or with husband jointly). Based on these values the overall score is found to be 8. Therefore, those women who scored half of the total score i.e. 4 and above were considered as participated in household decision otherwise not participated in household decision and coded (1, 0) respectively.

4.7 Data collection procedure

Data collection tool& personnel

Quantitative data: The data were collected using a structured interviewer administered questionnaire which were be developed by reviewing different literatures that are related to pregnancy intention and associated maternal behaviors during pregnancy was used to collect the data. The questionnaire had sociodemographic and socio-economic, access to reproductive health services, women's decision making and maternal health behaviors like ANC use, substance use and abortion attempt parts.

For qualitative data: the data were collected using FGD guide, in-depth interview guide. The participants for the in-depth interview were key informants who were selected purposively based on the assumption that they had more prior information on the issues (family/husband, HDAs (one to five networking leaders), Head of health facility, MCH focal person and HEWs). And also, for FGD for pregnant women who were not included in quantitative study.

Recruitment and training of data collectors

Ten data collectors and three supervisors who were qualified with Diploma in nursing and BSc. in public health, was recruited and trained for both quantitative and qualitative. The data collectors and the supervisors were trained for two days on questions included in the questionnaire, approach to the interviewees, details of interviewing techniques, respect and maintaining privacy and confidentiality of the respondents. Objectives and importance of the study was briefed.

Pretesting and data collection

The questionnaire was pre-tested in Gombora Woreda of Hadiya zone the study area on 5% of respondents and necessary modifications were made according to the finding. Interviews conducted face to face after obtaining informed consent.

4.8 Data quality assurance

The questionnaire was developed from different studies related to pregnancy intention and associated maternal behaviors during pregnancy previously. It was translated from English to Hadiyisa and back to English to assure consistency. The principal investigator supervised the performance of the data collectors on daily basis. The collected data was checked for completeness, accuracy, clarity and consistency by the principal investigator.

Efforts were made to ensure that findings from qualitative data adhered to the quality standards of confirmability, dependability, and credibility. For these, enough time was given to prevent premature interruption of idea and records were cross-cheeked with transcriptions before analysis by other collogues to check dependability. And also, triangulation of qualitative and quantitative data sources, and audit trails exemplified through tools and guides and tick description.

4.9 Data processing and analysis

For quantitative data

The data on each coded questionnaire were entered into Epidata version 3.1 Then, the entire data were exported to SPSS version 21 statistical packages for analysis. Descriptive analysis was done to compute frequencies, percentage and cross tabulations. Bivariate analysis was performed to select variables for multivariate analysis. Hence variables with p-value < 0.25 in the bivariate analysis was taken as candidates for multivariate analysis. But, statistical significance was tested at the level of 5% at the multivariate level. Finally, multivariate logistic regression analysis was performed to identify the independent effect of pregnancy intention on the outcomes of interest after controlling other possible confounding variables. Adjusted Odds ratios with its 95% CI was reported.

Model fitness was checked by Hosmer & Lemeshow goodness of fit which was not significant in each models. Multicolinearity was checked using VIF

For Qualitative data

For qualitative data records, were transcribed after hearing, reading and rereading the records and data were organized and summarized manually. Finally, thematically analyzed and the result was presented in narrative way and triangulated with the quantitative findings.

4.10 Operational definition and definition of terms

Intended pregnancy: A pregnancy that was desired at the time it occurred.

Unintended pregnancy: Is either unwanted or mistimed at the time of conception

Miss timed pregnancy: If a woman did not want to become pregnant at the time of conception, but did want to become pregnant in the future.

Unwanted pregnancy: If a woman did not want to become pregnant at conception or at any time in the future.

Contraceptives: Are methods which helps to prevent unintended or unwanted pregnancy

Parity: The number of times a woman has given birth.

Pregnant woman: is a woman who is amenorrhea for at list two months and has minor signs of pregnancy as well as the women believes to be pregnant or a woman who claims that she was told to be pregnant by health worker on her visit to health institution and believes to be pregnant.

Induced abortion: deliberative termination of pregnancy before 28 weeks of gestation

Safe abortion: termination of pregnancy less than 28 weeks of gestation by qualified and skilled persons using correct techniques in sanitary conditions.

Unsafe abortion: a procedure for terminating an unwanted pregnancy less than 28 weeks of gestation either by persons lacking the necessary skills or in an environment lacking the minimal medical safety standards or both.

Women autonomy: the ability to decide independently about type of contraceptive use, self-health care, and their income management.

Antenatal care utilization: Antenatal care (ANC) is a medical and general care that is provided to pregnant woman during pregnancy. If a woman received ANC at least once from skilled health professionals, antenatal care was said to be utilized.

Health risky maternal behaviors: those behaviors during recent pregnancy like alcohol use, tobacco /cigarette smoking, chat chewing.

Alcohol use: a mother is considered current alcohol user if she had self-reported use of alcohol within three months during recent pregnancy.

Smoker: a mother is considered as current smoker if she had self-reported smoking cigarettes within three months during recent pregnancy

Khat chewer: a mother is considered as current khat chewer if she had chewed khat within three months during recent pregnancy

Substance use: a mother is considered as current substance user if she had self-reported use of one of substances within three months during recent pregnancy.

4.11 Ethical consideration

Ethical clearance was obtained from ethical review committee of Jimma University; Institute of Health. Support letter was obtained from department of population and family health. The necessary permission was obtained from Hadiya zone health department, and selected Woreda health offices and kebele administrative offices.

All the study participants were informed about the purpose of the study, their right to refuse and assured confidentiality and informed verbal consent was obtained prior to the interview.

4.12 Dissemination plan

The findings of this study was presented to Jimma University, Institute of Health, Faculty of Public Health; department of population and family health. It was communicated to Hadiya Zone health department, Woreda health office and other concerned bodies. Besides, these efforts will be made to present in different research symposium and scientific forums and for publication in national or international peer reviewed journal.

5. Results

5.1 Socio-demographic characteristics

Out of 770 eligible pregnant women, 748 women were interviewed making a response rate of 97%. The respondents mean age was 27.34(SD± 4.4). A majority of study participants were married 739 (98.8%) and Protestants 594 (79.4%)in religion. Majority of the respondents were from Hadiya ethnic group 670 (89.6%) and 509 (68.0%) were rural residents.

Five hundred four (67.4%) of the respondents were in the age group of 25-34 years. In terms of educational status of women, 405 (54.1 %) had no formal education, 181 (24.2%) were primary level, and 162 (21.7%) attended secondary and above. (Table 2)

Table 2 : Socio-demographic characteristics of pregnant women interviewed in Hadiya zone south Ethiopia, 2017

Variables	Frequency (n)	Percent (%)
Maternal age		
15-24	182	24.3
25- 34	504	67.4
35+	62	8.3
Ethnicity		
Hadiya	670	89.6
Kambata	34	4.5
Gurage	21	2.8
Amhara	11	1.5
Others*	12	1.6
Marital status		
Married	739	98.8
Single/ Divorced/ Widowed	9	1.2
Residence		
Rural	509	68.0
Urban	239	32.0
Educational status		
No formal education	405	54.1
Primary level (1-8)	181	24.2
Secondary and above (9-12) +	162	21.7
Religion		
Protestant	594	79.4
Orthodox	97	13.0
Muslim	42	5.6
Catholic	15	2.0
Occupation		
House wife	626	83.7
Government employee	85	11.4
Others**	37	4.9
Wealth index		
Low	249	33.3
Middle	250	33.4
Upper	249	33.3

Note* Silte, Oromo, Woleta, Halaba ** self-employee, student, daily laborers

Access to Health information or health services

From a total of 748 respondents 483 (64.6%) have exposure to mass media such as TV, radio the rest 265 (35.4%) have no exposure to mass media. Concerning to distance to nearest health facility, 304 (40.6%) of respondents took thirty to sixty minutes, 295 (39.4%) of respondents took less than thirty minutes, and 149 (20.1%) of respondents took greater than one hour to walk on foot.

Reproductive health related characteristics

From the total pregnant women interviewed, 151 (20.2%) were primigravida (gravida one) 437 (58.4%) were gravida one to four and 160 (21.4%) were gravida five and above. The median age of women got first pregnancy were at 21 years with IQR of 3. In this study 474 (63.4%) of women were participating in all house hold decision and the rest 36.6% were not participating in all house hold decision.

5.2 Prevalence of unintended pregnancy

In this study, from the total pregnant women interviewed 36.2% (95% CI; 32.9-39.63) were unintended pregnancy from which 230 (30.7%) were mistimed pregnancy and 41 (5.5%) were unwanted pregnancy. (Fig 3)

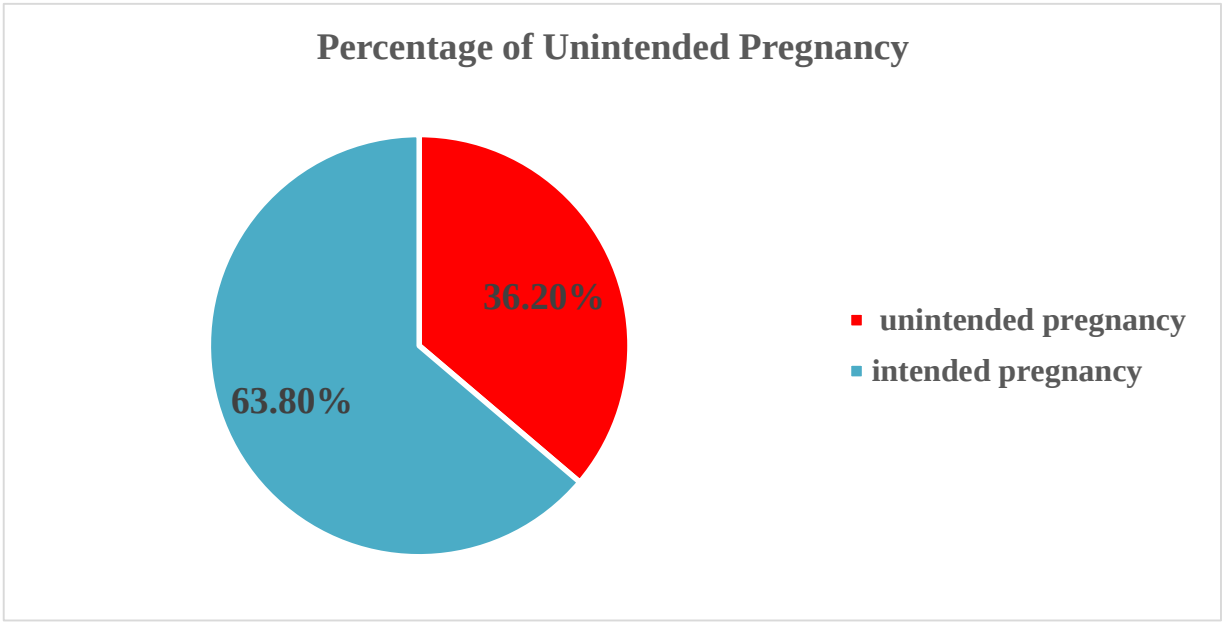


Figure 3 Percentage of unintended pregnancy in Hadiya zone, southern Ethiopia, 2017

In the qualitative study, participants of FGD mentioned that unintended pregnancy was common in their community. Most women in this study want to delay pregnancy but unintended pregnancy had occurred without recognizing they were pregnant and they were not prepared for child care. The majority of women didn't think the timing of when women got pregnant. For example, a twenty-eight-year old married woman stated:

> "*I think it's my mistake in this pregnancy…. just it happened …never planned to occur. … I wouldn't have gotten pregnant at this type of situation if I had a plan on getting pregnancy."*

Those women expressed their regrets about contraception non-use and didn't need to regret it in the future. One FGD participant, age of twenty-six years old mother described;

"I was on oral contraceptive pills even though I used inconsistently and intermittently …. at first time told that you were pregnant in health center; really I feel shock and confusion regarding my pregnancy. …even I cried at time."

5.3 Unintended Pregnancy and Maternal Behaviors during Pregnancy

One objective of this study was to examine the relation between pregnancy intention and maternal behaviors during pregnancy. The maternal behaviors assessed in this study were utilization antenatal care (ANC use), substance use and abortion attempt

Antenatal care utilization

Among the study participants 73.1% (95% CI; 70.1 – 76.2) received at least one ANC visit during their pregnancy while the rest did not. Of those who received ANC 343 (62.7%) received from health center and the rest 21.8% and 15.5% were from hospital and health post respectively. Only about 4.8% (n = 26) had received the WHO recommended 4 or more ANC visit from skilled professionals. Other than fourth antenatal care visit 144 (26.3%), 249 (45.5%) and 128 (23.4%) pregnant women had first, second and third visits during the recent pregnancy respectively.

Out of antenatal care attendants 503 (92.0%) and 464 (84.6%) took the minimum recommended tetanus toxoid (TT) dose and Iron Folate supplementation respectively.

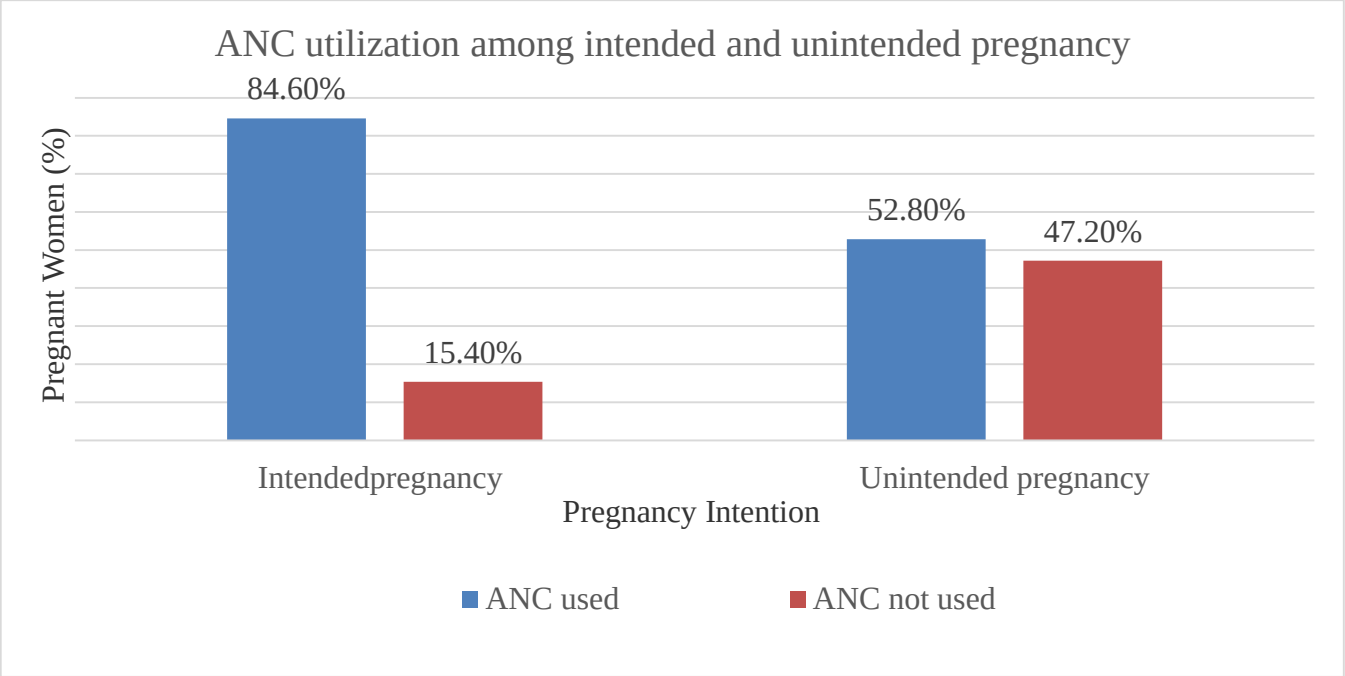


Figure 4: Percentage distribution of ANC utilization among intended and unintended pregnancy in Hadiya zone, southern Ethiopia, 2017

When we see use of antenatal care with different maternal and socio-demographic characteristics in the following (Table 3). The higher proportion of pregnant women with age group 15-24 years 138 (75%), women with secondary and above education 138 (85%), women who intended the pregnancy (84.6%), women participating in all household decisions (81%), women with gravida one (85%), and women living nearer to health facility (86.4%) used antenatal care at least once as compared to their counter parts.

Table 3: The percentage distribution of the Antenatal care use by selected variables among all pregnant women in Hadiya zone, southern Ethiopia, 2017

Selected variables	ANC used	ANC not used
15 – 24	138 (75.8%)	44 (24.2%)
25 – 34	372 (73.8%)	132 (26.2%)
35+	37 (59.7%)	25 (40.3%)
No Education	283 (69.9%)	122 (30.1%)
Primary(1-8)	126 (69.6%)	55 (30.4%)
Secondary and above(9-12)+	138 (85.2%)	24 (14.8%)
House wife	444 (70.9%)	182 (29.1%)
Government employee	78 (91.7%)	7 (8.3%)
Other	25 (67.6%)	12 (32.4%)
Lower	200 (80.3%)	49 (19.7%)
Middle	173 (69.2%)	77 (30.8%)
Upper	174 (69.9%)	75 (30.1%)
Intended	404 (84.7%)	73 (15.3%)
Unintended	143 (52.8%)	128 (47.2%)
No	163 (54.5%)	111 (44.5%)
Yes	384 (81%)	90 (19%)
Have exposure	377 (64.2%)	106 (35.8%)
Have no exposure	170 (78.1%)	95 (21.9%)
Less than 30 minute	226 (76.6%)	69 (23.4%)
30-60 minute	224 (73.4%)	80 (26.6%)
Greater than one hour	97 (65.1%)	52 (34.9%)
Gravida 1	129 (85.4%)	22 (14.6%)
Gravida 2 – 4	325 (74.4%)	112 (25.6%)
Gravida 5+	93 (58.1%)	67 (41.9%)
1 – 4	261(80.5%)	63 (19.5%)
5 – 8	264 (67%)	128 (33%)
9 – 12	22 (68.7%)	10 (31.3%)

Multivariate associations of Pregnancy Intention and Antenatal care use

Factors that were associated with antenatal care use on bivariate analysis using enter method at the level of P value less than 0.25 were fit in to multivariate logistic regression model. Accordingly, variables such as age, educational status, occupation, place of residence, wealth index, pregnancy intention, exposure to health information, participation in household decision, distance from health facility and gravidity were entered in to the multivariate logistic regression model using Backward LR method.

The result showed that women with unintended pregnancy were 69% less likely to receive antenatal care from a health professional (AOR = 0.31, 95% CI; 0.21 – 0.46) as compared to women with intended pregnancy after controlling for other possible variables in the model.

Variables other than pregnancy intention significantly associated with antenatal care use were; maternal occupation, wealth index, participation in household decision and gravidity. Odds of ANC use were two times higher for government employers when compared with house wives (AOR = 2.33, 95% CI; 1.01 – 5.35). Women from the middle wealth tertile were 43% less likely to receive antenatal care as compared to women from the lowest wealth tertile (AOR = 0.57, 95% CI; 0.36 – 0.89). Women who participate in household decision making were nearly two times more likely to receive ANC than their counter parts (AOR = 1.62, 95%CI; 1.11 – 2.38). Women belonging to gravida five and more were 60% less likely to receive ANC services when compared with those belonging to gravida one (AOR = 0.40, 95% CI; 0.22 – 0.74). See the table 4 below

Table 4: Multivariate association of Pregnancy intention and Antenatal care among pregnant women in Hadiya zone, southern Ethiopia, 2017

Variable	ANC used(%)	ANC not used(%)	OR 95% C.I for EXP(B)	AOR 95% C.I for EXP(B)
Age				
15 – 24	138(75.8)	44 (24.2)	1	1
25 – 34	372(73.8)	132 (26.2)	0.89 (0.60 - 1.33)	1.38 (0.84 – 2.28)
35+	37 (59.7)	25 (40.3)	0.47 (0.25 – 0.86)	1.21 (0.55 – 2.65)
Educational status				
No Education	283(69.9)	122(30.1)	1	1
Primary (1-8)	126(69.6)	55 (30.4)	0.98 (0.67 – 1.44)	1.01(0.66 – 1.55)
Secondary and above(9-12)+	138(85.2)	24 (14.8)	2.47 (1.53 – 4.01)	0.99 (0.51 – 1.90)
Occupation				
House wife	444(70.9)	182(29.1)	1	1
Government employee	78 (91.7)	7(8.3)	4.56 (2.06 – 10.08)	**2.33 (1.01 – 5.35) ***
Other	25 (67.6)	12(32.4)	0.85 (0.42 – 1.73)	0.90 (0.42 – 1.94)
Wealth index				
Lower	200(80.3)	49(19.7)	1	1
Middle	173(69.2)	77(30.8)	0.55 (0.36 – 0.83)	**0.57 (0.36 – 0.89) ***
Upper	174(69.9)	75(30.1)	0.56 (0.37 – 0.85)	0.63(0.40 – 1.0)
Pregnancy intention				
Intended	404(84.7)	73(15.3)	1	1
Unintended	143(52.8)	128(47.2)	0.20 (0.14 – 0.28)	**0.31 (0.21 –0.46)****
Participated in decision				
No	163(54.5)	111(44.5)	1	1
Yes	384(81)	90(19)	2.90 (2.08 – 4.05)	**1.62 (1.11 – 2.38)***
Exposure to mass media				
Have no exposure	377(64.2)	106(35.8)	1	1
Have exposure	170(78.1)	95(21.9)	1.98 (1.42 – 2.76)	1.18(0.79 – 1.76)
Distance from health facility				
Less than 30 minute	226(76.6)	69(23.4)	1	1
30-60 minute	224(73.4)	80(26.6)	0.85 (0.59 – 1.23)	1.21(0.79 – 1.84)
Greater than one hour	97(65.1)	52(34.9)	0.57 (0.37 – 0.87)	0.98(0.58 – 1.66)
Gravidity				
Gravida 1	129(85.4)	22(14.6)	1	1
Gravida 2 – 4	325(74.4)	112(25.6)	0.49 (0.30 – 0.81)	0.74 (0.43 – 1.26)
Gravida 5+	93(58.1)	67(41.9)	0.23 (0.13 – 0.41)	**0.40 (0.22 – 0.74)****
Family size				
1 – 4	261(80.5)	63(19.5)	1	1
5 – 8	264(67)	128(33)	0.49 (0.35 – 0.70)	0.86(0.55 – 1.35)
9 – 12	22(68.7)	10(31.3)	0.53 (0.23 – 1.17)	1.17(0.46 – 2.99)

*P<0.05 **P<0.01, Hosmer and Lemeshow Test of significance = 0.053

Participants in FGD said that women with unintended pregnancy might not go for antenatal care follow-up due to the distress of getting pregnant unintentionally, One FGD participant, age 32 years old pregnant mother stated;

> *"A woman who got pregnant when she was in breast feeding the child …this makes her depressed and emotional breakdown. She may feel ashamed and she might not go for antenatal care and also even she didn't give a care the pregnancy."*

Time of ANC initiation and pregnancy intention

Even among the users of ANC, 85.4% (95%CI; 82.3 – 88.3) of women started their first antenatal visit lately after first four months as a result (77.2% in the 2nd trimester and 8.2% in the 3rd trimester). The median gestational age at first antenatal care visit was six months. Early ANC initiation was highest for intended pregnancies but lowest for unintended pregnancies.

The result showed that pregnancy intention is significantly associated to delayed (late) ANC initiation. Women with unintended pregnancy were four times (AOR = 4.40, 95% CI; 1.70 – 11.40) more likely delay initiation of ANC when compared with intended pregnancy after controlling for all the other variables.

Variables other than pregnancy intention significantly associated with late initiation of antenatal care were; exposure to mass media, distance from health facility, and gravidity or number of total pregnancy. Odds of late ANC initiation were two times (AOR = 2.43, 95% CI; 1.17 – 5.02) more likely for women who had no exposure to mass media as compared to women who had exposure. Women who travel less than one hour to the nearest health facility were 52% less likely to late ANC initiation than as compared to those who travel more than one hour. Women with gravida five or more were 3.62 times (AOR = 3.62, 95% CI; 1.18 – 11.07) more likely late ANC initiation when compared to gravida one women. (Table 5)

Table 5: Multivariate association of Pregnancy intention and late initiation of ANC among pregnant women in Hadiya zone, southern Ethiopia, 2017

Variable	ANC Late Initiation(%)	ANC Early Initiation(%)	COR 95% C.I for EXP(B)	AOR 95% C.I for EXP(B)
Age				
15 – 24	107(77.5)	31(22.5)	1	1
25 – 34	326(87.6)	46(12.4)	2.05 (1.239 – 3.40)	1.64(0.86 – 3.10)
35+	34(91.9)	3(8.1)	3.28(0.94 – 11.41)	1.75(0.39 – 7.75)
Educational status				
No Education	248(87.6)	35(12.4)	1	1
Primary (1-8)	114(90.5)	12(9.5)	1.34 (0.67 – 2.67)	1.21(0.58 – 2.52)
Secondary and above(9- 12)+	105(76.1)	33(23.9)	0.44 (0.26 – 0.76)	0.72(0.40 – 1.28)
Pregnancy intention				
Intended	329(81.4)	75(18.6)	1	1
Unintended	138(96.5)	5(3.5)	6.29 (2.49 – 15.89)	**4.40(1.70 – 11.40)****
Exposure to mass media				
Have no exposure	160(94.1)	10(5.9)	3.64 (1.83 – 7.27)	**2.43 (1.17 – 5.02)***
Have exposure	307(81.4)	70(18.6)	1	
Distance from health facility				
=< 1 hour	291(90.6)	30(9.4)	0.36 (0.22 – 0.59)	**0.48 (0.28 – 0.80)** **
>1 hour	176(77.9)	50(22.1)	1	1
Participated in decision				
No	146(89.6)	17(10.4)	1	1
Yes	321(83.6)	63(16.4)	2.90 (2.08 – 4.05)	1.29(0.67 – 2.46)
Gravidity				
Gravida 1	100(77.5)	29(22.5)	1	1
Gravida 2 – 4	278(85.5)	47(14.5)	1.71 (1.02 – 2.87)	1.31 (0.76 – 2.26)
Gravida 5+	89(95.7)	4(4.3)	6.45 (2.18 – 19.07)	**3.62 (1.18 – 11.07)***
Family size				
1-4	211(80.8)	50(19.2)	1	1
5-12	256(89.5)	30(10.5)	2.02 (1.24 – 3.29)	1.02(0.55 – 1.90)

*****P < 0.05, **P < 0.01 Hosmer and Lemeshow Test of significance = 0.058

Most of discussants mentioned that women with unintended pregnancy experienced a lot of unhealthy behaviors ranging from emotional suffering to delayed antenatal care to. For example, one FGD participant 27 years old mother of three child explained that to start Antenatal care services in nearby health post.

> *"... To disclose pregnancy status, be confident enough that I am pregnant, have to sense at least fetal movement, even sometimes I may hide from nearby family and not wear tight clothes ... and then I may initiate ANC after I feel it."*

One of key informant of in-depth interview, a 29 years old HEW explained about ANC utilization in the area...

> "*Unless the pregnancy is visible, women fear to tell to any one even for their husbands and not start antenatal care early due to fear if it disappears, so that they start at last trimester and not attend the recommended number of visit."*

Substance use

When we see substance use, currently pregnant women used at least one of these substances like drinking alcohol, khat chewing and smoking cigarette during recent pregnancy. Concerning these, from a total of respondents about (n= 71) 9.5% (95% CI; 7.4 – 11.5) currently pregnant women used substance during current pregnancy. From those substance users more two third used alcohol during recent pregnancy

Abortion attempt

From a total 271 women with unintended pregnancy, more than one third (35.4%) of women had attempted to induce pregnancy (abortion) during this pregnancy as shown in figure 5 below. This is one of health risky behavior occurred in pregnant women during pregnancy time.

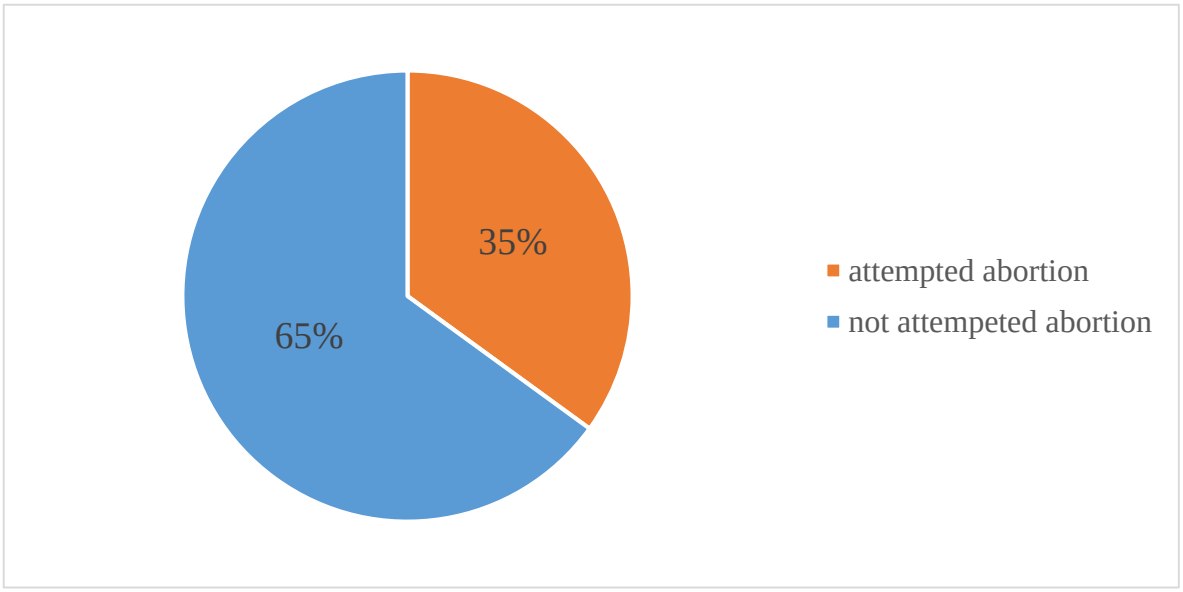


Figure 5: Percentage of abortion attempt in women with unintended pregnancy in Hadiya zone, Southern Ethiopia, 2017

Multivariate associations of unintended pregnancy and Substance use

In bivariate logistic regression, age of women, participation in household decision, pregnancy intention, gravidity (number of total pregnancy) and expose to mass media were associated with substance use.

After all variables with p value less than 0.25 entered into multivariate logistic regression age of the mothers and pregnancy intention were associated with substance use in the final model. After controlling for socio-demographic factors, unhealthy behaviors were still more likely to be associated with unintended pregnancy than with intended pregnancy. Thus, women with unintended pregnancy were three times (AOR = 3.01, 95% CI; 1.81 – 5.02) more likely use substance during pregnancy when compared with women with intended pregnancy.

Other variable associated with substance use was age of mothers; mothers with age of thirty-five and above were three times (AOR = 3.35, 95% CI; 1.39 – 8.10) more likely to use substance when compared with age group of 15 – 24. Table 6

Table 6: Multivariate association of pregnancy intention and health risky behavior (substance use) during pregnancy in Hadiya zone, southern Ethiopia, 2017

Variable	Substance used (%)	Substance not used (%)	COR 95% C.I for EXP(B)	AOR 95% C.I for EXP(B)
Age				
15 – 24	11(6)	171(94)	1	1
25 – 34	47 (9.3)	457 (90.7)	1.59 (0.81 – 3.15)	1.45 (0.73 – 2.88)
35+	13 (21)	49 (79)	4.12 (1.73 – 9.78)	**3.35 (1.39 – 8.10)***
Educational status				
No Education	48 (11.9)	357 (88.1)	1	1
Primary (1-8)	12 (6.6)	169 (93.4)	0.52 (0.27 – 1.02)	0.57(0.29 – 1.13)
Secondary and above(9-12)+	11 (6.8)	151 (93.2)	0.54 (0.27 – 1.07)	0.80(0.39 – 1.64)
Pregnancy intention				
Intended	27 (5.7)	450 (94.3)	1	1
Unintended	44 (16.2)	227 (83.8)	3.23 (1.95 – 5.35)	**3.01 (1.81 – 5.02)***
Participated in decision				
No	35(12.8)	239 (87.3)	1	1
Yes	36(7.6)	438(92.4)	0.56 (0.34 – 0.91)	0.89(0.50 – 1.58)
Exposure to mass media				
Have exposure	40(8.3)	443(91.7)	0.68 (0.41 – 1.11)	0.97(0.56 – 1.69)
Have no exposure	31(11.7)	234(88.3)	1	1
Gravidity				
Gravida 1	7(4.6)	144(95.4)	1	1
Gravida 2 – 4	39(8.9)	398(91.1)	2.01 (0.88 – 4.60)	1.32(0.50 – 3.45)
Gravida 5+	25(15.6)	135(84.4)	3.81 (1.59 – 9.09)	1.75(0.58 – 5.29)
Family size				
1 – 4	21 (6.5)	303(93.5)	1	1
5 – 12	50(11.2)	374(88.2)	1.92(0.13 – 3.28)	1.01(0.53 – 1.94)

*P < 0.01, Hosmer and Lemeshow Test of significance = 0.76

In qualitative study, most of the women said the difficulty of an unintended pregnancy and harsh feelings that come along with it. The majority of the women stated that it was the wrong time and they had been trying to avoid a pregnancy. Much of this distress was expressed when they recognized that they were pregnant at a time and continued through their pregnancy determination decision. One FGD participant, age 30 and mother of five children mentioned her own experience during her recent pregnancy as follows,

> *"I got this pregnancy accidentally due to not using contraception as my husband did not want me to use it …and I was considering to perform abortion at time …but it is blessing from God and waiting to give birth."*

Similarly, finding from in-depth interviewees also showed that women with unintended pregnancy consider to terminate a pregnancy. A 30-year-old woman with pregnancy of about 28 weeks of gestation, told her own emotional difficult as follows,

"I'm in a lot of discomfort and felt very confused since I got unintended pregnancy. I had drunk a traditional medicine to terminate the pregnancy but it was failed… I did not start antenatal care at all."

6. Discussion

This study found the association between pregnancy intention and maternal behavior during pregnancy among pregnant women in Hadiya zone, southern Ethiopia. The magnitude of unintended pregnancy in the study area was noticeably high in light of the goals of ensuring the women reproductive health and rights which was 36.2% among the study population, 30.7% for mistimed and 5.5% for unwanted pregnancy.

This finding was consistent with study conducted in different parts of Ethiopia with prevalence of 34%, 35%, 36.5%, 36.6%, (28,15,25,27) and Guttmacher Institute report of Ethiopia of 38% (3). The magnitude was higher than study conducted in Gelemso General Hospital, Ethiopia of 27.1% (26). But it was lower than PMA 2020 study report of 42% (4). This difference could be due to the latter study after child birth through interviews from most recent pregnancy but this study considers during pregnancy time. And also could due to the difference in socio-demographic characteristics, and availability of health service.

Improving maternal health care particularly providing antenatal care is important mechanism identified to reduce maternal mortality. Antenatal care allows for the management of pregnancy, detection and treatment of complications, and promotion of good health. According to the WHO recommendation, every pregnant woman should receive at least four ANC visits during pregnancy. However, in most of the cases ANC are usually utilized by women who are actively planning a pregnancy, women may benefit from routine ANC services.

In this study 73.1% women received at least one antenatal care visit during this pregnancy. This result was higher than the findings of the 2016 EDHS of 62% (6) and East Wollega Zone, Ethiopia of 57.5% (42). And also higher than multilevel Analysis of Zambia in which 69% women who had received ANC at least once (43). However, it was lower than study conducted in Hosanna town, Ethiopia in which 86.3% had at least one antenatal visit (44). The difference could be due to EDHS include the remote areas while this study area might have increased access to the service. And also socio-demographic difference might have for Zambia and study in Hosanna town considered only urban.

Additionally, about one in twenty (5%) women had received the WHO recommended 4 or more ANC visit from skilled professionals which was lower than 2016 EDHS report of 32% (6) and

East Wollega Zone of 14.9% (42). Even among users of ANC, 85.4% of women started first ANC visit late after first four months. The median gestational age at first antenatal care visit was six months. This finding was consistent with the studies done in Arba Minch Town and Arba Minch District, Ethiopia (45) and Ambo town, Ethiopia (46). As findings of qualitative study revealed that most of the women might be late to initiate ANC since they disclose pregnancy after they felt fetal movement (quickening).

This study revealed that pregnancy intention was significantly associated with unhealthy prenatal behaviors after controlling for other possible variables. Thus, the odds of receiving antenatal care were 69% lower for women with unintended pregnancy as compared to women with intended pregnancy. And also, late initiation of ANC was 4.4 times higher for mothers with unintended pregnancy than mothers with intended pregnancy. Similarly, different studies conducted in developing and developed countries showed that women with unintended pregnancy do not use ANC or receive inadequate care (14,17,29,31,47). This could be due to those women less prepared financially and emotionally for the demands of pregnancy and childbearing (48) and also, most likely due to delay in recognizing of pregnancy. Qualitative finding from FGD discussants supported this as they expressed that women with unintended pregnancy might late or receive inadequate ANC services due to the emotional suffering or disappointment of getting pregnant since the pregnancy was too close to the preceding birth.

This study showed that more than one third (35.4%) of women with unintended pregnancy had attempted to induce pregnancy (abortion) during this pregnancy, which is in agreement with the findings of other studies in Sweden and Iran (19,30). The possible explanation for this is that a woman seeking induced abortion usually have unintended pregnancy. These problems increase obstetric complications such as unfavorable pregnancy outcome, maternal morbidity and mortality. The finding from in-depth interviewees in qualitative study also showed that women with unintended pregnancy consider to terminate pregnancy.

Use of alcohol, illicit drugs and other psychoactive substances during pregnancy can lead to multiple health and social problems for both mother and child(49). The result of this study showed about 9.5% currently pregnant women used substance during recent pregnancy. This was lower than study of Bahir-Dar City, Ethiopia which revealed 34% of women consumed alcohol

during pregnancy (36). This could be due the socio-cultural difference and majority of respondents were from rural in this study.

After controlling other possible variables, unintended pregnancy was still more likely to be associated with health risky behavior. Thus, women with unintended pregnancy were three times (AOR = 3.01, 95% CI; 1.81 – 5.02) more likely to use substance during pregnancy when compared with women with intended pregnancy. This was consistent with study done in developed countries in which maternal risk behaviors, including alcohol and illicit drug use, and cigarette smoking (13,16,19,35,36). The reason might be women with unintended pregnancy not giving attention for pregnancy care and fetus.

Furthermore, in this study other factors independently associated with ANC use include maternal occupation, wealth, and gravidity. Government employers were more likely to receive ANC when compared with house wives. This finding was supported by other study done in North West Ethiopia (50) and Kenya (31). The possible justification could be women who are employed might have a better access and understanding of the ANC services. Women who participate in household decision making were more likely to receive ANC than women who don not participate which was similar with study done in southwestern Ethiopia (14). This might be due to when resources are controlled by women might have the freedom to use the service whenever they need it. Women who belong to gravida five or more were less likely to receive ANC than gravida one. This was in line with study in rural Nepal that mothers having first pregnancy had higher ANC visit than second or higher number of pregnancy (51). The reason could due to being confident about pregnancy from previous experience which may reduce maternal health seeking behavior.

Women's exposure to mass media, gravidity and distance from health facility were significantly associated with late ANC initiation. Women who had no exposure to mass media were more likely to late ANC initiation than their counter parts that was in agreement with study in Ambo town, Ethiopia (46) and Nigeria (52). Late initiation of ANC was 3 times more in gravida 5+ women as compared to gravida one women. This was supported by study conducted in Wollaita Soddo town, Ethiopia indicated that, pregnant women who have no history of parity were more likely to initiate ANC visit timely than women with one and above (53).

7. Conclusion and Recommendations

This study has found significant association in pregnancy intention and maternal behavior during pregnancy in the study area. And also, more than one-third of women had unintended pregnancy in the area. Thus, women with unintended pregnancy were less likely to use ANC, more likely to delayed initiation of ANC and more likely use substance.

Ministry of Health, Regional health Bureau, Zonal health department and Woreda health office should strengthen prevention of unintended pregnancy through utilization of effective contraception will help to reduce the magnitude of these unhealthy prenatal behaviors. Also majority of the mothers who attend ANC initiated the visits later than recommended by the World Health Organization.

Therefore, efforts to bring about changes in these major predictors, emphasis should be given to reduce unintended pregnancy to achieve SDG goal 3 interventions. Next, behavioral change communications (BCC) are recommended at individual and community level in attaining healthy behaviors during pregnancy.

Health professionals' particularly HEWs are placed to counsel especially those women who happen to conceive unintentionally is required;

- To minimize risk of having unhealthy behavior like not using ANC or receive inadequate care and delaying ANC initiation,
- intervene timely as they visit these women regularly in their households.

In addition, further study will be suggested by using follow up study on pregnancy intention and maternal behavior during pregnancy in the study area.

Strength of this study

The current study has strengths like application of both quantitative and qualitative approaches provided. Since recent pregnancy, less recall bias for maternal behaviors like ANC frequency

Limitation of this study

This study has its own limitations. There is social desirability bias since it is self-report. Temporal relationships of the outcome variable and the predictor variables cannot be established due to cross sectional nature of the study.

References

1. Santelli BJ, Rochat R, Hatfield- K, Gilbert C, Curtis K, Cabral R, et al. The Measurement and Meaning of Unintended Pregnancy. Perspect Sex Reprod Health. 2003;35(3):94–101.
2. Sedgh G, Singh S, Hussain R. Intended and Unintended Pregnancies Worldwide in 2012 and Recent Trends: Studies in Family Planning. Stud Fam Plann. 2014;45(3):301–14.
3. Guttmacher Institute. Induced Abortion and Postabortion Care in Ethiopia. 2016;
4. PMA2020. Key Family Planning Indicators 2014. Jhons Hopkins Bloom Sch Public Heal. 2014;
5. Alkema L, Chou D HD, S Z, AB M, A G. Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. Lancet. 2016;387(10017):462–74.
6. Central Statistical Agency (CSA) [Ethiopia] and ICF. Ethiopia Demographic and Health Survey Key Indicators Report. Addis Ababa, Ethiopia, and Rockville, Maryland, USA. CSA and ICF. 2016. 1-59 p.
7. United Nations. The Sustainable Development Goals Report. 2016;
8. Singh S. Darroch E. Adding It Up: Costs and Benefits of Contraceptive Services-Estimates for2012,. Guttmacher Inst United Nations Popul Fund. 2012;
9. World Health Organisation. Standards for Maternal and Newborn Health: provision of Effective Antenatal Care (Section 1.6). World Heal Organ Geneva,. 2007;
10. World Health Organization (WHO). Unsafe Abortion: Global and Regional Estimates of the Incidence of Unsafe Abortion and Associated Mortality in 2008. Sixth edition. Geneva. 2011;
11. R. A. Karim. Reproductive health, including adolescent repro- ductive health: Progress and challenges in Asia and the Pacific. Asia-Pacific Popul J. 2009;24(1):153–96.
12. Gipson JD, Koenig MA, Hindin MJ. The Effects of Unintended Pregnancy on Infant , Child , and Parental Health : A Review of the Literature. Stud Fam Plann. 2008;39(1):18–

38.

13. Dott M, Rasmussen ÆSA, Hogue ÆCJ. Association Between Pregnancy Intention and Reproductive- health Related Behaviors Before and After Pregnancy Recognition , National Birth Defects Prevention Study , 1997 – 2002. Matern Child Heal J. 2010;14:373–81.

14. Wado YD, Afework MF, Hindin MJ. Unintended pregnancies and the use of maternal health services in southwestern Ethiopia. BMC Int Health Hum Rights. 2013;13(36):1–8.

15. Wado YD, Afework MF, Hindin MJ. The effects of pregnancy intention on the use of antenatal care services : systematic review and meta-analysis. Reprod Health. 2013;10(50).

16. Cheng D, Schwarz EB, Douglas E, Horon I. Unintended pregnancy and associated maternal preconception , prenatal and postpartum behaviors. Contraception. Elsevier Inc.; 2009;79(3):194–8.

17. Khajehpour M, Simbar M, Jannesari S, Ramezani-tehrani F, Majd HA. Health status of women with intended and unintended pregnancies. Public Health. Elsevier Ltd; 2012;127(1):58–64.

18. Berglund A, Ekstrand M, Stern J, Joelsson LS, En TTYD, Hegaard H, et al. Is pregnancy planning associated with background characteristics and pregnancy-planning behavior ? 2016;95:182–9.

19. Goicolea I, Sebastian MS. Unintended pregnancy in the amazon basin of Ecuador : a multilevel analysis. Int J Equity Health. 2010;9(14):1–11.

20. Theme-filha MM, Baldisserotto ML, Claudia A, Amaral S, Ayers S, Granado S, et al. Factors associated with unintended pregnancy in Brazil : cross-sectional results from the Birth in Brazil National Survey , 2011 / 2012. Reprod Health. 2016;13(1):240–65.

21. Bastola, Kalpana TIK. Unintended Pregnancy Among Currently Pregnant Married Women in Nepal. 2013;(October).

22. Eliason S, Baiden F, Yankey BA, Asare KA. Determinants of unintended pregnancies in

rural Ghana. BMC Pregnancy Childbirth. 2014;14(261):1–9.

23. Exavery A, Kanté AM, Njozi M, Tani K, Doctor H V, Hingora A, et al. Predictors of mistimed , and unwanted pregnancies among women of childbearing age in Rufiji , Kilombero , and Ulanga districts of Tanzania. Reprod Heal. 2014;11(63):1–9.

24. Teshome FT, Hailu AG, Teklehaymanot AN. Prevalence of unintended pregnancy and associated factors among married pregnant women in Ganji woreda , west Wollega Oromia region , Ethiopia. Sci J Public Heal. 2014;2(2):92–101.

25. Mohammed F, Musa A, Amano A. Prevalence and determinants of unintended pregnancy among pregnant woman attending ANC at Gelemso General Hospital , Oromiya Region , East Ethiopia : a facility based cross-sectional study. BMC Womens Health. 2016;10–6.

26. Getachew FD. Level of Unintended Pregnancy and its Associated Factors among Currently Pregnant Women in Duguna Fango Wolaita Zone, Southern Ethiopia. Malaysian J Med Biol Res. 2015;2(2):75–88.

27. Hamdela B, Abebe G, Tilahun T. Unwanted Pregnancy and Associated Factors among Pregnant Married Women in Hosanna Town , Southern Ethiopia. PLoS One. 2012;7(6).

28. Hinsermu Bayu AK, Merga M. Prevalence of Unintended Pregnancy and Associated Factors among Pregnant Women Attending Antenatal Clinics in Debre-markos Town ,. J Women's Heal Care. 2015;4(3).

29. Shiadeh MN, Kariman N, Bakhtiari M, Mansouri S. Unwanted Pregnancy and Its Risk Factors Among PregnantWomen in Tehran, Iran. 2016;

30. Amo-adjei J, Tuoyire DA. Effects of planned , mistimed and unwanted pregnancies on the use of prenatal health services in sub-Saharan Africa : a multicountry analysis of Demographic and Health Survey data. 2016;21(12):1552–61.

31. Ochako R, Gichuhi W. Pregnancy wantedness , frequency and timing of antenatal care visit among women of childbearing age in Kenya. Reprod Health. Reproductive Health; 2016;1–8.

32. Health P. Unintended Pregnancies in Alabama , 2009-2011 Unintended Pregnancy by

Maternal Characteristics , Alabama PRAMS 2009-2011 Health Related Behaviors and Outcomes by Pregnancy Intention , Alabama PRAMS 2009-2011 Mother Not Planning Pregnancy using Birth Control at Conception , 2009-2011. 2013;(July):3–4.

33. May, P. A., Gossage, J. P. K, W. O., Robinson LKB, D., Manning M, Hoyme HE. Prevalence and epidemiologic characteristics of FASD from various research methods with an emphasis on recent in-school studies. Developmental Disabilities Research Reviews. 2009;15:176–92.

34. Terplan M, H MP, Cheng D, D M, Chisolm MS, D M. The relationship between pregnancy intention and alcohol use behavior : An analysis of PRAMS data. J Subst Abuse Treat. Elsevier Inc.; 2014;46(4):506–10.

35. Orr ST, James SA, Reiter JP. Unintended Pregnancy and Prenatal Behaviors Among Urban , Black Women in Baltimore , Maryland : The Baltimore Preterm Birth Study. 2008;(12).

36. Anteab K, Demtsu B, Megra M. Assessment of Prevalence and Associated Factors of Alcohol Use during Pregnancy among the dwellers of Bahir-Dar City, Northwest Ethiopia. 2014;5(12):939–46.

37. Hadiya Zone health departement. Hadiya Zone Health departement: Annual report. 2016;

38. Rutstein SO KJ. The DHS wealth index. Calverton, Maryland: ORC Macro; 2004;No. 6.

39. Vyas S KL. Constructing socio-economic status indices: how to use principal components analysis. Heal Policy Plan. 2006;21(6):459–68.

40. Mekonnen A, Asrese K. Household decision making status of women in Dabat. Sci J Public Heal. 2014;2(2):111–8.

41. Nigatu D, Gebremariam A, Abera M, Setegn T, Deribe K. Factors associated with women ' s autonomy regarding maternal and child health care utilization in Bale Zone : a community based cross-sectional study. BMC Womens Health. 2014;14(1):1–9.

42. Terfasa TG, Afework MF, Berhe FT. Antenatal Care Utilization and It ' s Associated Factors in East Wollega Zone ,Ethiopia. J Pregnancy Child. 2017;4(2):2–7.

43. Jacobs C, Moshabela M, Maswenyeho S, Lambo N, Michelo C. Predictors of Antenatal Care , Skilled Birth Attendance , and Postnatal Care Utilization among the Remote and Poorest Rural Communities of Zambia : A Multilevel Analysis. Front Public Heal. 2017;5.

44. Abosse Z, Woldie M, Ololo S. Factors influencing antenatal care services utilization in Hadiya Zone, Southern Ethiopia. Ethiop J Heal Sci. 2010;2(2).

45. Gebremeskel F, Dibaba Y, Admassu B. Timing of First Antenatal Care Attendance and Associated Factors among Pregnant Women in Arba Minch Town and Arba Minch District , Gamo Gofa Zone , South Ethiopia. 2015;2015.

46. Damme TG. Factors Associated With Late Antenatal Care Attendance among Pregnant Women Attending Health Facilities of Ambo Town, West Shoa Zone, Oromia Region, Central Ethiopia. 2015;1(2):56–60.

47. Exavery A, Kanté AM, Hingora A, Pemba S. How mistimed and unwanted pregnancies affect timing of antenatal care initiation in three districts in Tanzania. BMC Pregnancy Childbirth. 2013;13(35).

48. Parkhurst JO, Penn-Kekana L, Blaauw D, Balabanova D DK, Rahman SA et al: Health systems factors influencing maternal health services: a four-country comparison. Health Policy. 2005;73(2):127–38.

49. World Health Organization (WHO). Guidelines for the identification and management of substance use and substance use disorders in pregnancy. 2014;

50. Mulat G, Kassaw T, Aychiluhim M. Antenatal Care service utilization and its associated factors among mothers who gave live birth in the past one year in Womberma Woreda , North West Ethiopia. 2015;1–10.

51. Dahal RK. Utilization of Antenatal Care Services in Rural Area of Nepal. Int J Collab Res Intern Med Public Heal. 2013;5(2):120–3.

52. Aliyu AA, Dahiru T. Predictors of delayed Antenatal Care (ANC) visits in Nigeria: secondary analysis of 2013 Nigeria Demographic and Health Survey. 2017;8688:1–13.

53. Hussen SH, Melese ES DM. Timely Initiation of First Antenatal Care Visit of Pregnant

Women Attending Antenatal Care service. J Women's Heal Care. 2016;5(6):1–8.

Annex I

Questionnaire

Jimma University

Institute of Health, Faculty of Public Health

Department of Population and Family Health

My name is _____

I am working in a research team (project) which is conducted by Jimma University, Institute of Health, Faculty of Public Health, Department of population and family Health student of MPH/RH. I would like to ask you questions related to pregnancy. The purpose of this study is to determine pregnancy intention associated maternal behavior during pregnancy among pregnant women in Hadiya zone, Southwest, Ethiopia, 2017.

Your name will not be written on this questioner, and will never be used in connection with any of the information you delivered. You are selected for this study only by chance, not intentionally, so we would be thankful if you spend some time answering questions.

Your honest response to these questions will help us for better understand the problem. I would greatly appreciate your help in responding to this survey. You have the right not to respond any question you don't want to. May we get your permission to continue?

YES NO

Thank you!

Date ----------

Data collector signature: ----------

Section I: Questions on Socio-economic and Demographic characteristics of the respondent

No.	Questions	Response categories	Go to/Remarks
101	Age of respondent	In competed years ----------	
102	Where is your residence?	1. Woreda ---------- 2. Kebele ----------	
103	What is your ethnicity?	1. Hadiya 2. Kambata 3. Gurage 4. Amhara 5. Silite 6. Other (specify) ----------	
104	Educational status of the respondent	1. Can't read or write 2. Can read and write 3. Highest grade completed ----------	
105	What is your occupation?	1. Farmer 2. Government Employee 3. Student 4. House wife 5. Jobless(dependent) 6. Self-Employ 7. Other (specify) ----------	
106	Marital Status	1. Married, 2. Single 3. Divorced 4. Widowed	
107	What is your Religion?	1.Orthodox 2.Muslim 3.Protestant 4.Catholic 5.Other (specify)	
108	If you are married, at what age were you married?	Age in completed years----------	
	Household wealth index identification questionnaires		
109	What is the main source of drinking water for members	1. Piped into dwelling/compound 2. Piped outside compound	

	of your household?	3. Open well 4. Open spring 5. Covered well 6. Covered spring 7. Surface water (river, pond or lake) 8. Rain water 9. Other		
110	What kinds of toilet facility do most members of your household use?	1. Flush toilet 2. Traditional pit toilet 3. Ventilated improved pit latrine (VIP) 4. No facility/bush/field 5. Other (specify)_____		
111	Does your household have?	Yes No Radio 1 2 Electricity 1 2 Television 1 2 Telephone/cell phone 1 2 An electric mitad 1 2 A kerosene lamp/ 1 2 A bed/table 1 2 Own the house living in 1 2 Own a bicycle 1 2 A motorcycle 1 2 A car or truck 1 2 Have farm land 1 2		
112	Does the Household have the following animals?	1, yes 2 .no	How many?	
	oxen			
	cows			
	Horse /mule			
	Goats /sheep			
	Chicken			
	Donkey			
113	Main floor material of the house	1. Earth/sand 2. Reed/bamboo 3. Parquet or polished wood 4. Cement 5. Cement tiles/brick 6. Carpet 7. Other _____		

114	How many rooms in your house are used for sleeping?	No. of rooms ----------	
115	Main roof material of your house	1. Corrugated iron 2. Cement/concrete 3. Wood and mud 4. Thatch 5. Reed/bamboo 6. Plastic sheet 7. Other ----------	
116	How many people live in your household?	----------	

Section II: women's decision making power

No.	Questions	Respondent Categories	Go to/Remarks
201	Do you discuss about family planning with your husband or partner?	1. Yes 2. No	
202	Do you discuss about the number of children you want to have with your husband or partner?	1.Yes 2.No	
203	Do you have a decision making by your own when you are sick and seek health care?	1.yes 2.No	
204	Do you have a decision making together with your husband/ partner when you are sick and seek health care?	1.yes 2.No	
205	Do you have a decision making by your own when you are planning to visit your families?	1.Yes 2.No	
206	Do you have a decision making jointly with your husband/ partner when you are planning to visit your families?	1.Yes 2.No	

207	Do you have a decision making by your own when major household purchase is done?	1.Yes 2.No	
208	Do you have a decision making jointly with your husband/ partner when major household purchase is done?	1.Yes 2.No	

Section III: Questions on Access to Health information/services

No.	Questions	Respondent Categories	Go to/Remarks
301	Do you have exposure to mass media such as TV/Radio	1.Have exposure 2.have no exposure	
302	Travel time to the f/p service area	1.Less than 30 minute 2.30-60 minute 3. Greater than 1hour (distance in km.)	

Section IV: Questions on Reproductive Related Characteristics

No.	Questions	Respondents Categories	Go to/Remarks
401	How many children do you want to have?	Enter number_____	
402	How old were you when you first got pregnant?	Age in years----------	
403	How many pregnancies have you had till now?	Enter number---------	
404	At the time, you became pregnant: (for currently pregnant women)	Did you want to become pregnant then? 1. Yes 2. No a. If no, did you want to wait until later? or b. Did you not want to have any (more)	

		children at all?	
405	Have you ever been pregnant when you didn't want to be?	1.Yes 2.No	
406	If yes to Q405, how many pregnancies were unintended?	Enter number--------	
407	If you had been pregnant when you did not want to, what is the reason you could not avoid becoming pregnant?	1.Lack of awareness of contraception method 2. Poor access to contraception. 3. Husband or partner disapproval 4.Contraceptive failure 5.Other (specify)	
408	What did you do for the unintended pregnancy or pregnancies that you had?	1. Nothing pregnancy continued and I gave birth 2. Attempted to stop or induce the pregnancy but failed	

Section V Antenatal care utilization

501	After you knew that you are pregnant, did you go anywhere to receive antenatal care?	1. Yes 2. No	If No, go Q601
502	How many weeks or months pregnant were you when you first received antenatal care for the pregnancy?	Number of months---------- Number of weeks----------	
503	How many times did you receive antenatal care during the current pregnancy?	Number ---------- Don't know ----------	
504	Where did you receive antenatal care for the current pregnancy?	1. Hospital 2. Health center 3. Health post 4. Other specify	
505	During this pregnancy, were any of the following done at least once?	1. Were you weighed? 1, Yes 2. No 2. Was your blood pressure measured? 1, Yes 2. No	

		3. Did you give a urine sample? 1, Yes 2. No 4. Did you give a blood sample? 1, Yes 2. No	
506	During this pregnancy, were you given an injection in the arm to prevent the baby from getting tetanus?	1. Yes 2. No	
507	During this pregnancy, how many times did you receive tetanus injection?	----------	
508	During this pregnancy were you given iron folate?	1. Yes 2. No	
509	How many times a week did you take an iron folate?	1. I didn't take iron folate at all. 2. 1 to 3 times a week 3. 4 to 6 times a week 4. Every day of the week	
510	During any of your antenatal care visits did a health care worker talk with you about any of the things listed below?	1. The signs and symptoms of preterm labor 2. Signs of pregnancy Complications? 3. What to do for Pregnancy complication 4. Getting tested for HIV/AIDS) 5. Where to go for delivery 6. Breastfeeding your baby after birth	

Section VI Health risky behaviors

	Alcohol taking		
601	During this pregnancy, did you take drinks containing alcohol?	1, No 2, Yes	
602	How often were you taking alcohol drinks?	1. Daily 2. 3 times per week 3. Once a week 4. Once a month	
603	If yes to Q 601 what type of alcohol do you drink?	1. Beer/Draft 2. Wine 3. Tej 4. Local areke 5. Others (specify	
604	When did you start drinking alcohol	1. During this pregnancy 2. Before this pregnancy	
605	During this pregnancy, is there a time you	1. Yes 2. Never	

	have tried to stop drinking alcohol?		
	Khat chewing		
608	During this pregnancy, did you ever chew Khat?	1. No 2. Yes	
609	How often were you chewing khat?	1. Daily 2. 3 times per week 3. Once a week 4. Once a month	
610	When did you start chewing khat?	1. Before this pregnancy 2. During this pregnancy	
611	Some people have tried a range of illegal/non-medical/addictive drugs. Have you tried one?	1. No 2. Yes	
	Smoking		
613	During this pregnancy, did you ever smoke?	1. No 2. Yes	
614	How often were you smoking?	1. Daily 2. 3 times per week 3. Once a week 4. Once a month	
615	When did you start smoking cigarettes?	1. Before this pregnancy 2. During this pregnancy	
616	Does your husband/partner smoke cigarettes while you were pregnant?	1. No 2. Yes	
617	How often was he smoking?	1. Daily 2. 3 times per week 3. Once a week 4. Once a month	
618	Is there any other person at home who smokes cigarette while you were pregnant?	1. No 2. Yes	
619	How often was he or she smoking?	1. Daily 2. 3 times per week 3. Once a week 4. Once a month	

Thank you!

Annex 2

Focused Group discussion /FGD GUIDE

Good morning/afternoon.

My name is _____ We are conducting a study on pregnancy intention and associated maternal behaviors during pregnancy in Hadiya zone. You are kindly requested to be included in this study, which will have an importance in improving maternal and child health services. The study has approval from Jimma University. “May I continue?” The discussion will take about 60-90 minutes. No information concerning you, as individual or a group will be passed to another individual or institution without your agreement. Your participation is voluntary and you have the right not to participate fully or partially. We have also a tape recorder for information this is also based on your permission. Only honest answers would contribute to improvement of health planning.

If agreed, give codes and start.

Kebele FGD conducted ……

Date of FGD conducted: …….

Participants back ground

(Don’t write their name, under the column headed discussant code)

S/N	Discussant code	Age	Educational background	Gravidity	Parity	Gestation age (Months)

FGD Guide

1. What are the main livelihood mechanisms for people in this area? What are women's roles and responsibilities?
2. What are people's attitudes towards large family size in this community? Is there a change in the desired family size (number of children)?
3. What are the challenges in attaining desired (small) family size?
    a. What happens to couples that have too many children or too frequent births? How does having too many children affect the parents/family? How does it affect the children?
4. Do you think there are couples that become pregnant when they didn't necessarily intend to? What types of pregnancies are considered as unintended (hint: pregnancies to younger, or older women, closely spaced pregnancies….?)
5. What are the reasons that some women have unintended pregnancies?
6. What happens to a woman who gets pregnant when she did not want to? how does it affect the mother - Hint, do they go for antenatal care like other women?
    a. Do they care for themselves and the pregnancy?
    b. Do women with such pregnancies consider abortion as an option?
7. What are the reasons that pregnant women do not use antenatal care in this community?
8. Do they expose themselves to unhealthy behaviors like smoking, alcohol drinking, khat chewing, abortion attempt etc.? what are the reasons behind those behaviors?
9. What are the reasons that women do not use family planning in this community?

In depth interview /IDI guides

KEY INFORMANT IN-DEPTH INTERVIEW GUIDE LINE

Good morning/afternoon!

My name is _____. I represent the research team from Jimma University. We are conducting in-depth interview with individuals who are selected purposively based on their experience and rich source of information concerning pregnancy intention and its associated maternal behaviors during pregnancy in this community. Thus, this interview is prepared for this purpose to get appropriate information on concerning pregnancy intention and its associated maternal behaviors during pregnancy in Hadiya zone. The information that we will obtain using this interview will be used only for research purpose and, we need to assure you that confidentiality of your response will be kept. The study has no risk to you and your family members but has mild discomfort and time consuming. Therefore, I politely request your cooperation to participate in this interview. You do have the right not to respond at all or to withdraw in the meantime, but your input has great value for the success of our objective.

Part I: General Information

1. Position (responsibility)_____
2. Work experience in the area_____

Part II: Socio demographic information

1. Age: _____
2. Sex: _____ _____
3. Educational status and qualification _____

IDI guides

For how long have you been in this area?

1. What is an unintended pregnancy?
2. Do you know unintended pregnancies are occurred because of not using family planning methods (hint: pregnancies to younger, or older women, closely spaced pregnancies….?)
3. What is effect of unintended pregnancy?
4. What happens to a woman who gets pregnant when she did not want to? how does it affect the mother - Hint, do they go for antenatal care like other women?
    a. Do they care for themselves and the pregnancy?
    b. Do women with such pregnancies consider abortion as an option?
5. How do you look at ANC services utilization in this area?
6. What are the reasons that pregnant women do not use antenatal care in this community?

    Probe, why…how… do women with unintended pregnancy use ANC as intended pregnancy?
7. Do they expose themselves to unhealthy behaviors like smoking, alcohol drinking, khat chewing, etc.? what are the reasons behind those behaviors?
8. What do you think about consequences of unintended pregnancy in this area?
9. What other things do you know about unintended pregnancy in this area?

Questionnaire Hadiyissa version

Xumaato

Ii summ _____ yamamoomo.

An waarummok Jimmi yuniverstee'iisette, waarum quuxi, eebaganne uwwakkam losanuwiinse mat annann annann soroobuwwa issimma. An kaba keese lamfoor meenti bikina mat mat xammichcha xa'meenatte. Ka soroobimi mashka'i lamfoor ihakami ammane, lamfoor ihimmi sawwitee ixxenne warook amo'i haalati mah ihuk da'e ka ni Hadiyyi Zoonanne woroo'n giir giichchi Itophphe'enne 2009 H.D soroobimminatte.

Ee bikkina atim ka amo'ikaa ciiluwikaa leho gatisimmina isakam soroobina xa'minoom xa'michchuwwa dabarimine hara'mamtakkona maashoomine xa'moommo.

Kiininse aa'inoom maaxaqq wocca te'im ayyi sawwitem at iittit bee'eka mull manina higinsaa uwinoombee'an ihukkisa xoxxoolinsaa kulleena iitinoommo. Keese ka xa'michchuwwa dabattona isoommok giddisaateyyo, hassilas ayyi ammanem uuwlisimma xantooto. Ka sawwitenne iitamtilas asheerimma xanoommo. Xale'i caak ihaakkoo hanqo'i dabachcha uwwitoo'isina maashoominne edaa tiisiisoommo. Kusoroob jimm yuniverste'iinse hanqqooma siidaakohane ihukisam la'inseena hansoommo.

"Ashsheerim xansiisoo?"

Xansiisoohan ihulass xamima asheere. Xansiisoobelas galaxitaka'aa uulisehee.

Xa'mmaanch summi_____ xishshaqqi_____ xa'makko'i ball_____

Xa'michchi annann mare'e (koodda) _____

002. Ga'nna Qaballe'e_____

003. Mi'n Xigo _____

Luxx baxanchcha: Xa'mamaa'n hegeeq heechch gatti xa'michchuwa.

Xigo	Xa'mmicha	Dabachi	
101	Umuri mee'o	----------hiinchcho	
102	Hee'lakkam beyyo	1. Worada---------- 2. Qabale'e ----------	
103	Ki giichch maruchcho	1. Haddiya 2. Kambaata 3. Guraage'e 4. Amaara 5. Silixe'e 6. Mulekk yolass-----	
104	Ki losa'n gaball	1. Mahim losan bee'e 2. Xale'i kitaabimmaa qananaimaa xanommo. 3. guulit baxanchi----------	
105	Ki baxx maruchcho?	1. Abuulanchote 2. Addi'l baxanchchotte 3. Losaanchotte 4. Min amatte 5. baxi bee'e (manina baxoomane) 6. I gaginnete baxoomoki 7. Mulekk yolass-----	
106	Min issim duuha'i hinkide?	1.Min issaammo 2.Min isumoyyo 3.annann ihaamo 4. Mi'n annichchi lehaakko	
107	Ama'nnati maruchcho?	1. Ortodoksa 2. Islaanchcho 3. Protestaanta 4. kaatolika 5. Mulekk yolass-----	
108	Mine isitaatoohan ihulas, mee'i umurane?	Umura ……	
	Minina hasisooki luwwuwa moo'isoo xa'mmichchuwa		
109	Ki'n minene agi wo'o haniinse siidakamoki?	1. Mi'n gibe'enne boono'ii 2. gibe'ii biirane boono'ii 3. ifiisamubee'i ba'lli wo'ii 4. ifiisamubee'i bu'ii 5. ifiisamaako ba'lli wo'ii	

		6. ifiisamaakoo bu'ii 7. daadoo wo'ii (daajii) 8. xee'n wo'ii 9. mulek yoolas	
110	Ki'nnuwwi hinkido'i shu'm mine awwaaxitakamok?	1. Wo'i baxoo shu'm mine 2. Losammi ba'lli shu'm mine 3. Hafachchi aago'isa ihaako ba'lli shumi mine 4. Shu'm min bee'e 5. Mullek yoolasi----------	
111	Ki'n mine yookki luwwi	Yookko bee'e 1. Reedooni 1 2 2. Maabiraati 1 2 3. Televezhiini 1 2 4. Edensaanchi/silki 1 2 5. Doollabi injee'l gala'a 1 2 6. Kuraazi 1 2 7. Ara'i/ xarapheezi 1 2 8. Gaqi mine 1 2 9. Bishtiliiki 1 2 10. Doqidoqe'e 1 2 11. Kaame'i 1 2 12. Abuulli uulli 1 2	
112	Kannii woroon yoo'i mikmikoo soko'uwwi ki'n minenne yoo?	1, yookko 2 , bee'e	Mee'o?
	Mirgo'uwwi		
	Saayyi		
	Farashi/buquchi		
	Fella'i/gereebbi		
	Antabaa'i		
	Hallichchi		
113	Mi'ni gaxxi	1. Buchcha 2. Lee'mi sinqixxa 3. Xaawula 4. Simminto'o 5. Qara'a/sale'e 6. Muleki yoolas	
114	Mee'i iinsi baxxanchuwwi yookko?	Iinsi baxxanchuwwi xigo----------	
115	Mi'n iimman baxxamuki luwwi	1. Qorqoro'innete 2. Simminto'inne 3. Xaawulinne 4. Lee'mi sinqixxi	

		5. Huqqine 6. Laaskitinne 7. Mulleki yoolas---	
116	Ki mine hee'oo manni xigi mee'o?	……	

La'im baxanchcha. Meenti sawwite guullishi xanato

Xigo.	**Xamichchuwa**	Doo'luwwa	
201	Ki minine qoodadakka qarami bikina ki aro'inne atooratakamo?	1. Eeyya atooralomo 2. Atooralomoyyo	
202	Ki'nnuwi oosi xiqqi qaxoomane ki aro'inne atooratakamo?	1. Eeyya atooralomo 2. Atooralomoyyo	
203	Ki gaginne faya'oomi ege'llim bikkina kigaqqi murte'aalloom yoo?	1. Eeyya 2. Bee'e	
204	Ki'n gaqqi faya'oo'm ege'llimi bikkine ki aro'inne maqire atoorachine guullitakamo?	1. Eeyya 2. Guullinoomo	
205	Qari manna do'llena hasita'ni ki gaginne murte'laa matoo?	1. Eeyya 2. Maroomoyyo	
206	Qari manni do'llena hasita'ni ki aro'ine maqire atoorachcha issitakamo?	1. Eeyya 2. Issinoomoyyo	
207	Minina hasiso lobi mu'uttuwa aa'lloo ammane ki gagine goolitoo?	1. Eeyya 2. Gooloomoyyo	
208	Minina hasiso lobi mu'uttuwa aa'llakkami ammane ki aro'ine maqire atoorachcha issitakamo?	1. Eeyya 2. Isinoommoyyo	

Saxxibaxxanchi: fayya'oom asso affisansoo luwwa xa'mmichchuwwa

xig	xa'mmichcha	Dabachchi	
301	Asso higisanso luwwi bikkina kobilishina Tv, raadoonina higisi ammani yoo?	1. Yookko 2. Bee'e	
302	Ki mininse Qoodakka'a qarimmi bikkina sawwite uwwakam beyyi qeeraa'loom	1. 30 daqiiqi hoffane 2. 30'iinse 60 daqiqa 3. 1 sa'atiinse lobane	H

Soo'l baxxanchi: qaranchi ammaxamaako xamamichchi

xig	xa'mmichcha	Dabachchi	
401	Mee'i oossi hee'ona hassoo?	Xig----------	
402	Ki luxxi lamfoolanonne mee'i ummur hee'ukko?	Ummur……	
403	Mee'i kor lamfoor ika?	Xig----------	
404	Lamfoor ikiti ammane	Lamfoor ikkeenooma hassaa hee'llitto? 1. Hassaa hee'ummo 2. Hassumoyyo a. Hassibee'an ihulas, mati qaxxi ammane egeetena hassaa hee'llito? b. Te'im hore'ooma chiilluwwa hasittoyo?	
405	Kanni ilage, hasoo'nim lamfoor ikki amman hee'ukko?	1. Yookko 2. Bee'e	
406	Yoolas, 405 mee'i ammane hassoo'nimmi lamfoor ikka hee'lito?	Xigo----------	
407	Hassi bee'i lamfoolan ihukki ammane, hoo'limmi xanti bee'i mashka'i maha?	1, qoodaka'a qarakamisa isoo luwwi qoossimmi hoonge 2, qoodaka'a qarakamisa isoo luwwi siidimmi hoonge 3, aro'i sawwixxi shiintanchi hoonge 4, qoodaka'a qarakamisa isoo luwwi baxximi hoonge 5, mulleki yoolas----------	
408	Hasamubee'i lamfoolanina maha isitoo?	1. Mahami isoomoyyo qaroomo 2. Uulisoomoo/te'm diliisimina yakkite isaamo	

Baxxanch onto qarimm illage uwwakkam awwonammi fayya'oo'm losano

xigo	Xa'michcha	Dabachcha	areeshsha
501	Lamfoor ikkaa lasonne ,awwonammi fayya'oo'm laseeshsh losano aa'l ball yoo?	1.yookko 2.bee.e	
502	Luxxi awwonammi fayya'oom losano massit ammane mee'i saant/aga'n lamfoorette hee'ilitto?	saant xigo----------	

		Aga’n xigo----------	
503	Kako’ll lamfoolanonne, mee’i amma’n awwonammi fayya’oo’m losano massitaa?	Xigo---------- La’oomoyyo----------	
504	Awwonammi fayya’oo’m laseeshsh losano masitootokki hannonne?	1.hospitaalannette 2.fayya’oo’m xaaxxitennete 3.qabale’I fayya’oo’m xaaxxitenne 4.mull beyyonne	
505	Kako’ll lamfoolanonne awwonaa yookeenno offe’ukkuyya mataa massitaa hee’litto?	1.guurato keenamtaa? a. keenamaammo b.keenamummoyyo 2.xiiqqi gafechcha keenamtaa a.keenamaammo b.keenamummoyyo 3.shuma moo’amtaa? a.moo’amaammo b.moo’amummoyyo 4.xiiga moo’amtaa ? a.moo’amaammo b .moo’amummoyyo	
506	Kako’ll lamfoolanonne, ciiluwwi fayya’oo’mina angi wodinne uwwakkam kittibaata massitaa?	1. massaammo 2. massummoyyo	
507	Massitilas, mee’i kore?	----------	
508	Kako’ll lamfoolanonne, xiiqq hoffechchina uwwakkam qaraare massitaa?	1. masaammo 2. massummoyyo	
509	Massitlas ,saantanne mee’i ammane	1.horiyyem massummoyyo 2.saantanne 1^{tii}-3 ammane 3.saantanne 4^{rii}-6 ammane	

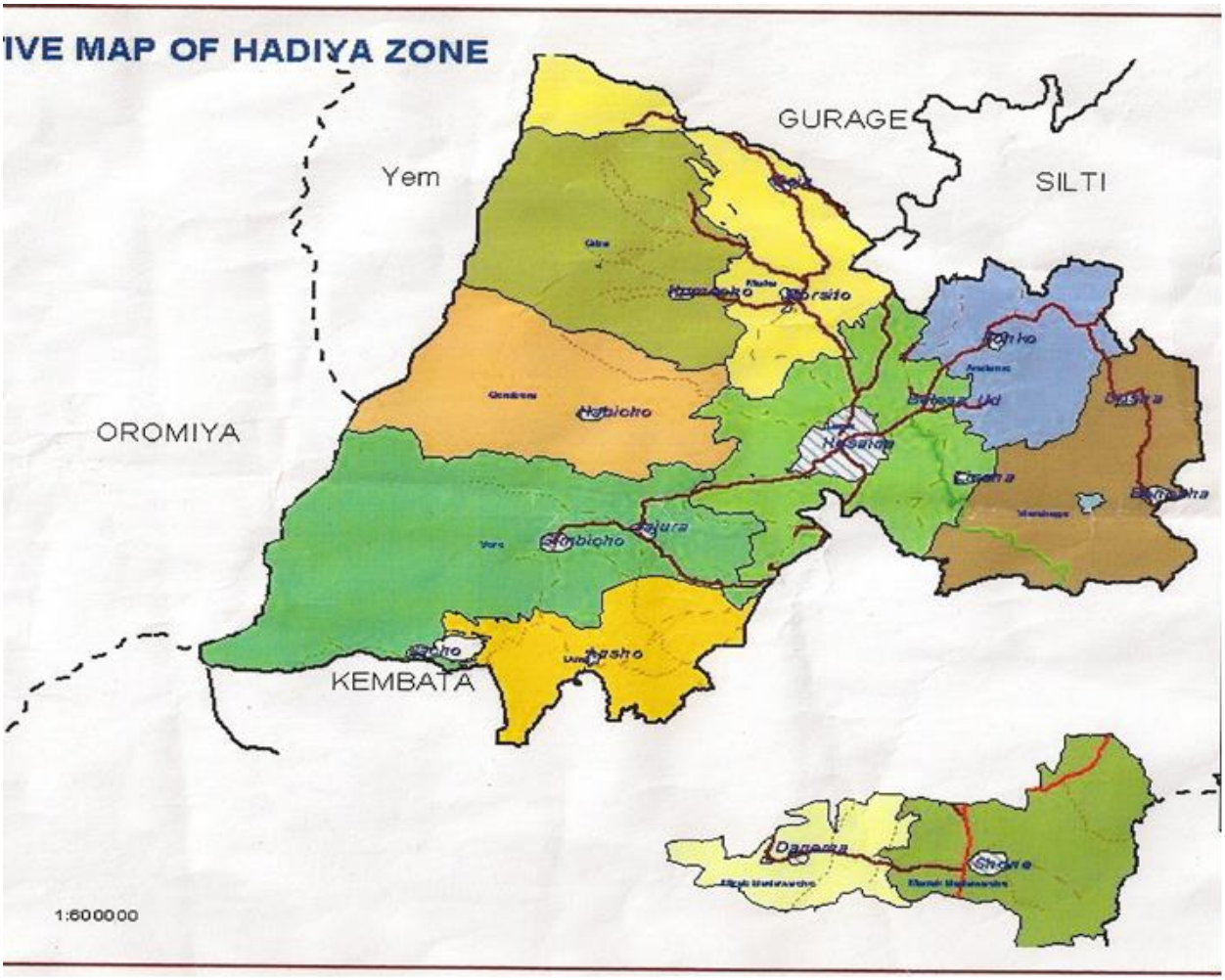
		4.saantanne hundi ballam	
510	Awwonammi fayya'oo'm losano massituuyya, awwonaa uwwamu kee'n bikkina fayya'oo'm baxaan wocu luwwi yoo?	1. amman afoo'n amadoo xuuchch bikkina 2. lamfoolanone afoo qeddi bikkina 3. qeddi afuta'n maha isimmi hasisooda'e 4. HIV/AIDS maramarimina 5. Hano qarimi hasisooda'e 6. Qachchi qaramukisam iciisimmi hasisoo'isa	

Loh baxxancha: faya'ooma hawodooki haalattuwwa

	Dimbisoo aga agimmi bikkina		
601	Ka ko'l lamfoolannone dimbisoo luwwa agaa heelitoo?	1. Agaamo 2. Agumoyyo	
602	Mee'i ammane agitoki?	1. Ballina ballina 2. Saanta sas kore 3. Saanta mataage 4. Agana mataage	
603	Agoohani ikkilasi maruchcho?	1. Biira'a 2. Wooyina 3. Xajja 4. Haraqe'e 5. Mulkeen yoolas kure	
604	Hinki ammane dimbisoo aga agimma asheetitok?	1. Ka lamfoolanonnete 2. Ka lamfoolani ilageneme	
605	Ka lamfoolanone alkoola agimma uuliseena yakite isitammani yoo?	1. Yookko 2. Bee'e	
	Caata qama'imma		
608	Ka ko'l lamfoolannone caata qama'la laqoo?	1. La'oommo 2. La'oommoyyo	
609	Mee'i kore caata qama'lootoki?	1. Ballina ballina 2. Saanta sas kore 3. Saanta mataage 4. Agana mataage	
610	Hinkammane caata qama'imma asheetitok?	1. Ka lamfoolanonnete 2. Ka lamfoolani ilageneme	
611	Matimat manni qaraaroomi bee'i qaraalluwwa awwaaxookko. At awwaaxiti ammani yoo?	1. Awaaxxammo 2. Awaaxxumoyyo	
	Koshsho'o wiriisima/agimma		

613	Kako'lli lamfoolannone kosho'o agi ammani yoo?	1. Yookko 2. Bee'e	
614	Mee'i ammane kosho'o wiriisitoo?	1. Ballina ballina 2. Saanta sas kore 3. Saanta mataage 4. Agana mataage	
615	Hinka ammane koshsho'o wiriisima asheetitoki?	1. Ka lamfoolanonnete 2. Ka lamfoolani ilageneme	
616	Ki aro'i te'm beshichi kosho'o ati lamfoori ikitaanii wiriisaa la'oo?	1. La'ookko 2. La'ooyyo	
617	Mee'i ammane kosho'o wiriisoo?	1. Ballina ballina 2. Saanta sas kore 3. Saanta mataage 4. Agana mataage	
618	Ki mine mulli manni kosho'o wiriisoo manni ati lamfoor ikaatoohanonne yoo?	1. Yookko 2. Bee'e	
619	Mee'i ammane kosho'o wiriisoo/ wiriisitamo?	1. Ballina ballina 2. Saanta sas kore 3. Saanta mataage 4. Agana mataage	

Map of Hadiya Zone



DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or any other university and that all sources of materials used for the thesis have been fully acknowledged.

Name: _____

Signature: _____

Name of the institution: _____

Date of submission: _____

This thesis has been submitted for examination with my approval as University advisor

Name and Signature of the first advisor _____

_____

Name and Signature of the second advisor _____

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