Quality of Antenatal Care Services and Factors Influencing Maternal Satisfaction in Public Health Facilities of Wolkite Town, Gurage Zone, Southern Ethiopia

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List of Abbreviations

ANC Antenatal Care

AOR Adjusted Odd Ratio

BPCR Birth Preparedness and Complication Readiness

CI Confidence Interval

CBC Complete blood count

EDHS Ethiopian Demographic and Health Survey

EMDHS Ethiopian Mini Demographic and Health Survey

FANC Focused Antenatal Care

HBSAg Hepatitis B surface antigen

HIV Human Immunodeficiency Virus

IoM Institute of Medicine

MMR Maternal Mortality Ratio

PMTCT Prevention of Mother to Child Transmission

RH Reproductive health

SPSS Statistical package for social science

TTV Tetanus Toxoid Vaccine

VDRL Venereal Disease Research Laboratory

WHO World Health Organization

Abstract

Back ground: Although antenatal care (ANC) coverage in Ethiopia is increasing, the quality of ANC remains low. It is believed that increasing number ANC contact by itself is not enough to change current maternal health status and that the quality of ANC service can have important impact in the heath of mothers and new born.

Objective: To assess quality of antenatal care services and factors influencing maternal satisfaction in Wolkite town public health facilities

Methods: The study was carried out in Wolkite town the administrative center of the Gurage zone located 155 km west of capital city of the country, Addis Ababa. A facility-based cross sectional study design was conducted. The study populations were all pregnant women who attended the service in data collection period. Sample size was 409. A pretested structured questionnaire was used. Data entry, coding, cleaning was done by Epi-Info and the analysis was done by using SPSS version 26. Binomial and multinomial logistic regression analyses were conducted to examine the association between the socio-demographic, obstetric factors, process aspects of quality and maternal satisfaction. Ethical clearance was taken from the school of Public Health of Addis Ababa University research ethics committee

Result: Out of 409 sampled pregnant women attending ANC clinic 398 (97.3%) were responded. About 48% % of respondent were satisfied with ANC services. Residence (AOR = 5.839 95% CI 3.175, 10.739), pregnancy status (AOR = 6.216 95% CI 2.943, 13.127), frequency of ANC visit (AOR = 1.804 95% CI 1.056, 3.082), counseling on nutrition (AOR = 2.875 95% CI 1.709, 4.835), prevention of mother to child transmission (PMTCT) of HIV(AOR = 2.337 95% CI 1.427, 3.827) and birth preparedness and complication readiness (BPCR) (AOR = 2.426 95% CI 1.341, 4.389)and provision of iron (AOR= 2.816 95% CI 1.249, 6.350) had an association with maternal satisfaction.

Conclusion: Generally, maternal satisfaction with antenatal care services in this study was low. Absence of clean latrine & adequate water supply was the main reason stated by respondents. Effort should be made to improve accessibility of safe and potable water supply

Keywords: Wolkite; Antenatal care

1. Introduction

Background

Antenatal care (ANC) is care given by skilled health personnel to pregnant mother and adolescents to make sure the best health outcomes for pregnant women and new born during gestation(1). Skilled care during pregnancy, delivery, and the postpartum period are important interventions in reducing maternal and neonatal morbidity and mortality (2). During pregnancy to judge the well-being of mother and fetus' the following tests are recommended throughout the pregnancy: personal history, urine tests for glucose, protein, and infection, weight, blood tests like a complete blood count, human immunodeficiency virus (HIV) test, or the triple screen, physical examination, blood pressure, fetal heart monitoring, ultrasound scans, non-stress tests are also part of monitoring well-being of the women and the fetus(3).

The ANC serves as a base for mothers to have access to comprehensive reproductive health (RH) services. therefore, the ANC is not only intended to ensure a healthy women and baby by giving quality ANC, but also to make pregnancy safe as well as use full experience for a mother and her relatives. These can be attained by improving the physical, emotional, and mental health of the mother, and integrating ANC to other health services(4).

Based on the 2016 world health organization (WHO) recommendation, Ethiopia is substituting the preceding four-visit focused antenatal care (FANC) with the new ANC eight-contact model: five contacts in the third trimester, one contact in the first trimester, and two contacts in the second trimester(4).

At least eight contacts are required to lessen perinatal death, enhance the pregnancy experience of women, to tact continuity of care and health workforce constraints, and to enhance communication with, and support, for women. Moreover, the model makes the ANC giver to early identify and manage possible maternal and fetal problems prior to serious or irreversible stage. It also opens room for the pregnant mother to talk her symptoms and concerns with her care giver before advancing. For those pregnant women with recognized problems like multiple pregnancy and post-term pregnancy, additional contacts may be needed. The number of additional contacts depends on the identified health problem and the health condition of the women(4).

Quality antenatal care is important for pregnant mother to keep normal pregnancies & delivery by; recognition of prior health problems, prior recognition of complications appearing during pregnancy, health promotion & disease prevention, birth preparedness and complication readiness planning(3). This can be achieved by providing efficient and timely care, supporting the ANC service by the best available evidence, respecting the privacy, dignity, and confidentiality of women, qualifying of health care provider and making the ANC care women centered

Statement of the problem

The global maternal mortality ratio (MMR) in 2017 is estimated at 211 maternal deaths per 100 000 live births. MMR in the world's least developed countries is high, estimated at 415 maternal deaths per 100 000 live births, which is above 40 times higher than MMR in Europe. In Africa MMR for 2017, estimated at 542, which is the highest. Sub-Saharan Africa and Southern Asia accounted for approximately 86% (254 000) of the estimated global maternal deaths in 2017, with sub-Saharan Africa alone accounting for roughly 66% (196 000)(5)

Based on the report of Ethiopian demographic and health survey (EDHS) 2016 34% of mothers received antenatal care from health professionals for their most recent births(2). The 2019 Ethiopian mini demographic and health survey (EMDHS) results shown that four in 10 women (43%) had four or more ANC visits for their most recent live birth(6). The pregnancy related mortality ratio was 412 maternal deaths per 100,000 live births for the 7 years before the EDHS 2016 survey, this is far below the sustainable development goal of 70 maternal mortality per 100, 000 live births(2,7) .A study conducted in 2020 to assess quality antenatal care services delivery at health facilities of Ethiopia discovered that the overall readiness score to provide ANC service was low(8).According to EMDHS report urban women were more likely than rural women to have received ANC from a skilled provider (85% and 70%, respectively) and to have had four or more ANC visits (59% and 37%, respectively)(6).This indicates that antenatal care in rural part of the country is less efficient.

Studies showed that clients receive low quality ANC services in different parts of Ethiopia(9–11). A study conducted in Harar town the magnitude of quality of ANC service was 24.3%(9).

According to the study conducted in Sidama region only 41.2% of pregnant mothers had obtained good quality antenatal care(10). A longitudinal Study on assessment of Quality of antenatal care services and its determinant factors in public health facilities of Hossana town shown that only 31.38% of study were obtained good quality ANC(11).

Although ANC coverage in Ethiopia is increasing(2,6). It is believed that access to ANC by itself is not enough to change current maternal health status and that the quality of ANC service can have important impact in the heath of mothers and new born.

Even though studies repeatedly emphasize the benefit of quality of pregnancy care in enhancing the health of pregnant women and her baby, the quality of ANC still low(8). Hence, this study assessed quality of antenatal care and factors influencing maternal satisfaction in Wolkite Town public health facilities, Gurage zone Southern Ethiopia.

2. Significance of the study

The findings of this study will be contributed to the knowledge of the level of quality of antenatal care and how maternal satisfaction differ from individual to individual based on the different factors. Moreover, the finding will provide important input and helped as base line for interested one, so that it will assist to increase health personnel's attempt in enhancing quality of antenatal care services and policy makers to reconsider the preceding program towards quality of antenatal care services and to assure high quality antenatal care service in the study area

3. Literature review

Overview of health care quality

Defining 'high quality' healthcare provision is difficult. It is expected that different healthcare organizations vary in their explanation and so have defined it in various ways. Donabedian, who is known as the creator of quality in health care, defines quality of care assessment simply as "determining whether what is already known to be the best care is being implemented"(12).The Institute of Medicine (IoM) defined quality as 'the extent to which health care for individuals and populations enhance the possibility of preferred health conditions and are compatible with current professional knowledge'(13). National quality strategy and safety defined quality as comprehensive and integrated care that is measurably safe, effective, people-centered, and uniformly delivered in a timely way that is affordable to the Ethiopian population and appropriately utilizes resources and services efficiently(14). According to WHO recommendation health services across the world should be effective, safe, and people-centered(1). Moreover, in order to realize the benefits of quality health care, health services should be timely, equitable, integrated and efficient (14). In general quality development shouldn't be administrative control of previously defined quality levels which are discussed in the background section but it is an ever changing process- this indicates the significance of quality improvement.

Measuring quality in health care

Given the complex and interconnected aspects of women's experiences with the maternal health care system, measuring quality is challenging. There are different models known for measuring the quality of healthcare service. One of well-known quality measurement model is Donabedian, which first noted in 1966. This model stated that all evaluations of the quality of care can be classified in terms of one of three measures: structure, process, or outcome. Donabedian emphasized that the feasibility of quality of healthcare improvement relies on the technical and interpersonal aspects of quality. Technical quality means the medical treatment dimension of care, whereas interpersonal care means informing the client about his or her therapy(15).

Socio-demographic background of the client

It is believed that background of the client (age, level of educational, marital status, occupation, income and residence) play an important role in maternal satisfaction with ANC services.

The study conducted in Jimma town showed that educational status of the pregnant women and monthly income had significant impact on quality of ANC service. Those pregnant women with no formal education and primary education were more likely satisfied than women pregnant women whose education level secondary and above(16)

study conducted in Chencha district showed that urban women were more likely satisfied with ANC service than rural women (17). In another study conducted in southwest of Ethiopia there was a statistically significant association between maternal satisfaction and family monthly income, marital status and ethnicity (18).

Obstetric factors

Obstetric factors (whether the pregnancy is planned or not, time of initiation of ANC, gestational age, frequency of ANC visits and parity) play an important role in maternal satisfaction with ANC service

Age of mother gravidity, parity, history of abortion and history of still birth are some of variables determining maternal satisfaction with ANC service. In a study conducted in Jimma, pregnancy status and history of still birth appeared to be important predictors of maternal satisfaction with ANC(16). Another study conducted in Gamo Gofa Zone number of ANC visits was independently associated with maternal satisfaction(19).The study conducted in Chencha district shown that parity and pregnancy status were predictors of maternal satisfaction with ANC service(17)

Structure

With regard to measuring quality of antenatal care service these characteristics include the guidelines, waiting areas, transportation, water, sanitation, consultation room, laboratory facilities, medical supplies and skilled professionals who provide care are included in input quality. A study conducted in Northwest Ethiopia identified that availability of infrastructure and general amenities was deficient (59%) (20). Another study conducted in West Ethiopia indicated

that half of the facilities have no disinfectant solution (18). Nationwide study in Ethiopia discovered that health facilities were poorly equipped. This nationwide study demonstrated that there was a critical gap (40%) of health care providers who have been trained to provide ANC service(8).

Having clear guidelines, waiting areas, transportation, water, sanitation, consultation room, laboratory facilities, medical supplies and skilled professionals would have a positive influence on quality of antenatal care. A study done in Southern Ethiopia identified women whose home far from health facilities were more likely unsatisfied than women who had near(19)

Process

Data regarding the process perhaps acquired from medical documents, interviews, observation. It involves caring, politeness, regard for the patient's autonomy, maintains patient's privacy, clarification of procedure, consolation, According to study done in Uganda procedures carried out, women birth preparedness and advice for risk factors were the lowest practiced ANC services(18). Another study conducted in Addis Ababa found that 74.2% of the women were effectively communicating with healthcare providers, and confidentiality was maintained for 380 (62.4%) of the women (21). A study conducted in Wolaita zone shown that only 52.3% of respondents full filled process quality of the service (22).

According to different studies process attributes (counseling on nutrition and birth preparedness and complication readiness plan) have a positive influence on maternal satisfaction with ANC service(18,19).

It is believed that information on nutrition in pregnancy increase client's satisfaction. A study conducted in Western Ethiopia found that counseling on importance and types of food to be eaten during pregnancy was associated with maternal satisfaction on ANC services(18)

Outcome

Outcome indicators measure the end result of health care on the health status of patients and populations and often depend not only on medical care but also on genetic, environmental, and behavioral factors. Improvements in patient's knowledge and beneficial change in patient's behavior included under broad definition of health status and is the degree of patient satisfaction with care. The outcome of care related to ANC will result in better health outcomes for mother

and their newborns based on antenatal services given. The outcome quality of antenatal care can be measured in terms of **maternal satisfaction**

Different studies were done across Ethiopia on the satisfaction of pregnant mothers with ANC services. A study conducted in west Ethiopia revealed that 79.7% of study subjects were satisfied with ANC services(18). Another study done in Bele Gasgar district reported that 55% of pregnant women were satisfied with ANC services(23). A study conducted in Chencha district showed that 52.6% of participants were satisfied with ANC services(17). Moreover, a study conducted in Gamo Gofa zone revealed that only 21.5% pregnant women were satisfied with ANC services(19)

4. Conceptual frame work

The analysis of the study was based on the conceptual framework which was developed by Donabedian in 1980. Donabedian framework assessed the quality of care, which consist of three different components of quality care such as structure, process, and outcome. The factors that can influence maternal satisfaction with ANC services are demographic factors such as age, marital status, education level and occupation. Obstetric characteristics that may also influence the maternal satisfaction with ANC services are parity, gravidity, number of antenatal visits and timing of antenatal visits. Structural and process attributes of care may influence maternal satisfaction with antenatal care services.

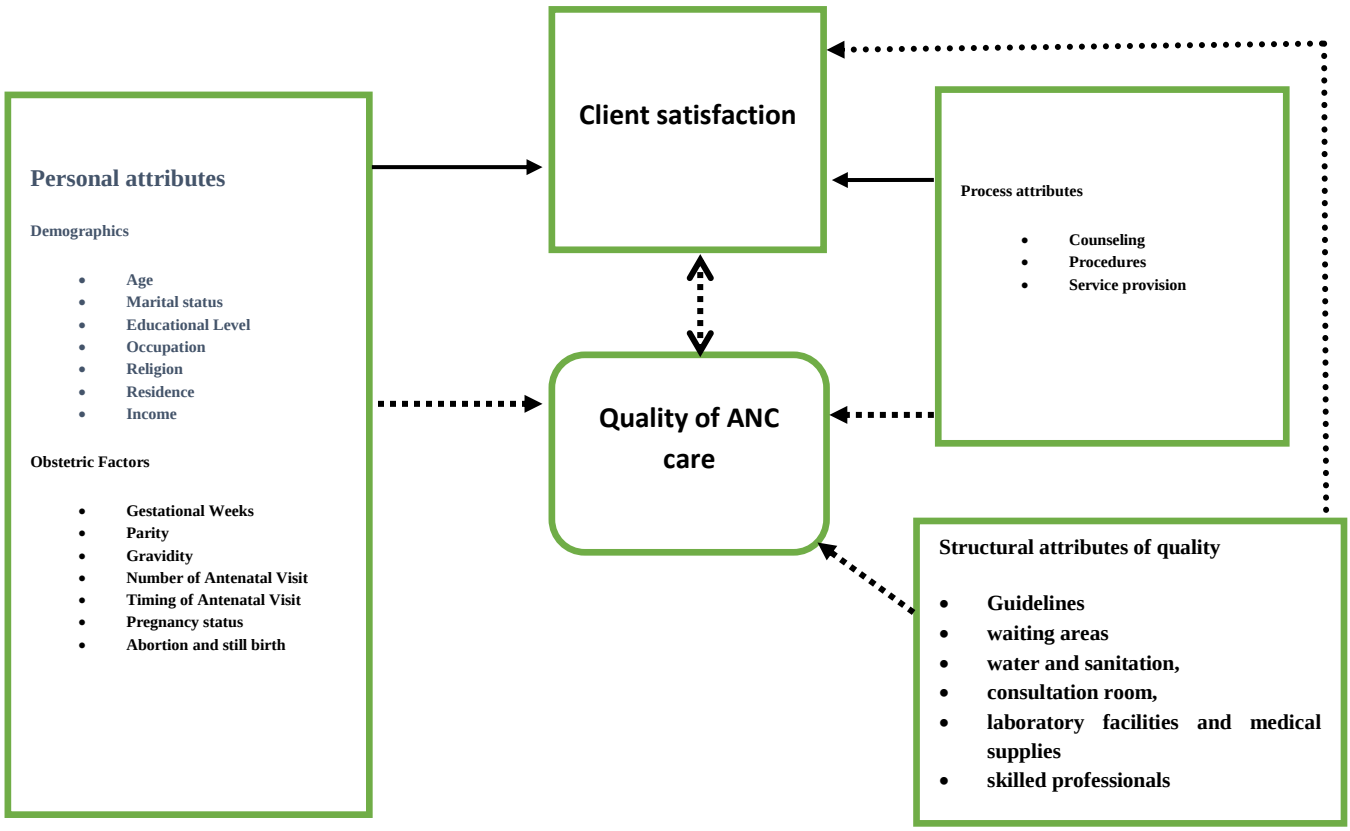

Figure 1 a conceptual frame work for assessing quality of antenatal care services and factors influencing client satisfaction

5. Objectives of the study

General objective

To assess quality of antenatal services and factors influencing maternal satisfaction in Wolkite town public health facilities, 2023

Specific objectives

To describe quality of antenatal care by structure, process and outcome in Wolkite town public health facilities, 2023

To identify factors that influence maternal satisfaction in Wolkite town public health facilities, 2023

6. Methodology

Study area and period

The study was carried out in Wolkite town public health facilities from May to June. Three health centers and Wolkite university specialized hospital were included. Wolkite town is found 155 km west of capital city of the country, Addis Ababa. The town has three sub-cities and six kebeles. According to Wolkite town administration health office, estimated total population of the town is 61 309. Of whom 51% are females and the rest 49% are males. There are three government health centers, one specialized hospital and 11 private clinics in the town. The hospital provides services for inhabitants living in Gurage zone and surrounding districts. The three health centers provide services for inhabitants in Wolkite town and surrounding districts. According to Gurage zone health department report Gurage zone has a population of 1 880 164 of whom 51 % were women and 49% men. 65 054 women planned to be ANC contact (24)

Study design

Facility based cross-sectional study design was conducted to assess quality of antenatal services and factors that influences maternal satisfaction with ANC services among pregnant women of public health facilities in Wolkite Town.

Population

Source population: All mothers who attended the ANC service in the study area

Study subjects: sampled ANC care service users in the study period who were voluntary

Inclusion and exclusion criteria

Inclusion criteria

- Clients reside in the study area and attended ANC in data collection period
- Clients from other facilities but attended ANC in data collection period were involved.

Exclusion criteria

- High-risk pregnancy
- Those who declined participation.

Sample size and sampling

In this study the sample size was determined by the formula:

$n= (z\alpha/2)^2 p\ (1-p)/d^2$

Considering the following assumptions: Estimated population or proportion (p) 41.2% quality of care which was taken from similar study conducted in Sidama Region(10), confidence interval=95%, margin of error tolerated (D=5%).

Where n=sample size

Zα/2=confidence interval at 95%= 1.96

p=0.412 q=0.588

d=margin of error

n= (1.96) (1.96) (0.412) (0.588)/ (0.05) (0.05) =372

Sample size for associated factors was calculated by assuming a 95 % confidence interval, and 80% power resulted in maximum sample size of 143, less than the sample size required for estimating the quality of ANC.

Required sample size of 372

By taking 10% non-response rate the final sample size of 409

Sampling procedures

All four public health facilities (Wolkite health center, Gubre health center, Edget Ber health center and Wolkite university specialized hospital) were incorporated. The number of respondents required from each facility were allocated proportionately depend on average number of ANC clients in three month report of each health facility. The study participants were selected by using consecutive sampling technique which involved women who came to health facilities during data collection period.

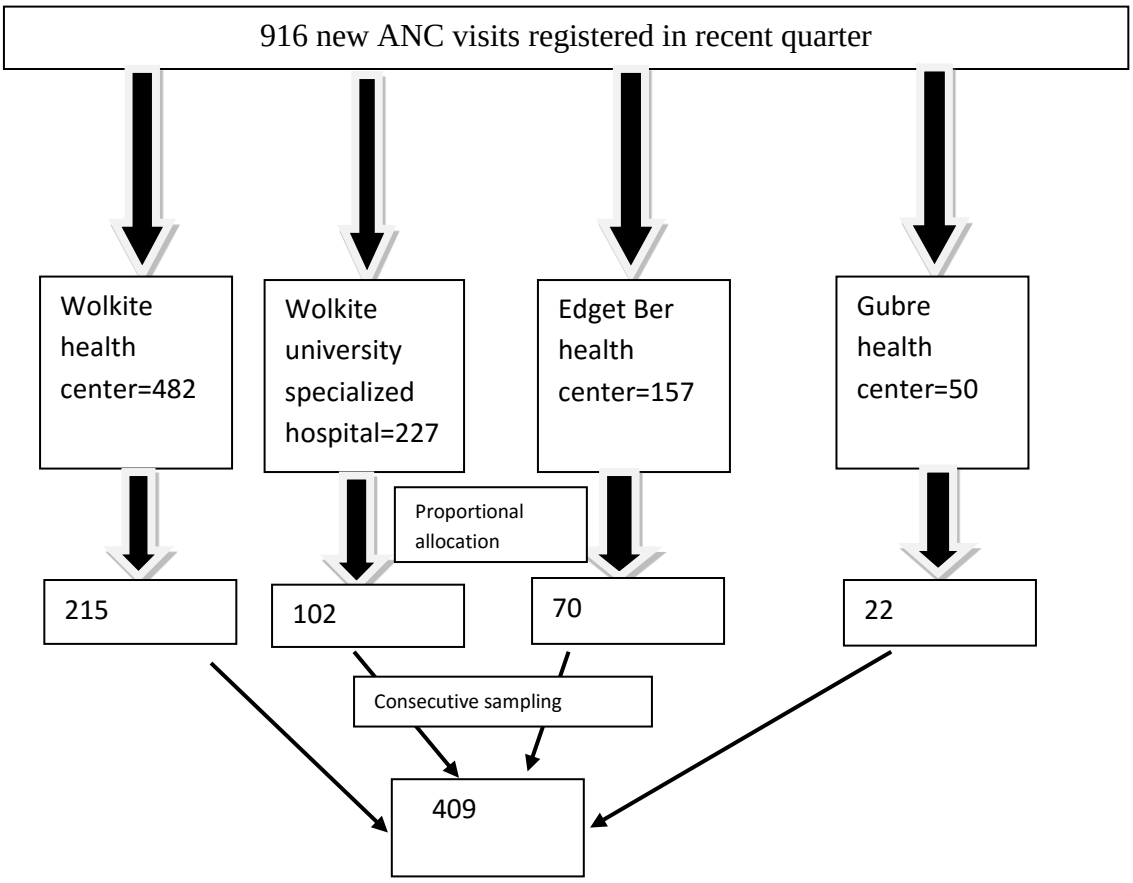

Figure 2:-Schematic representation of sampling procedure on quality of ANC and factors influencing maternal satisfaction in Wolkite town public health facilities

Data collection method

A pretested structured questionnaire was used. The questionnaire was adapted from related ANC studies conducted elsewhere in Ethiopia and national antenatal care guideline(4,18,20,22,25). The questionnaire consists of socio-demographic factors, obstetric history, structural attributes, process attributes and maternal satisfaction related-questions respectively. Face to face interview was the technique of data collection. Inventory check lists that consist infrastructure, laboratory tests, necessary ANC equipments and essential drugs. Data on type of services ANC attendees received was collected through interview and card review. Data collectors were get the willingness of participants after explaining the purpose of conducting this study and verbal consent was obtained from the respondents ahead of data collection.

Study variables

Dependent variable: maternal satisfaction.

Independent variables:

1. Socio-demographic backgrounds of the mother (age, residence, educational status, religion, marital status, occupation, income),
2. Obstetric variables of the client (pregnancy status, time of initiation of ANC, gestational age, number of ANC visits, gravidity and history of abortion and still birth)
3. Structural attributes to assess availability of (guideline, sanitation facilities, electricity, laboratory facilities, medical supplies, waiting area and consultation room).
4. Process attributes (counseling, service provision and procedures).

Data processing and analysis

Data entry, coding, cleaning was done by Epi-Info and the analysis was done by using SPSS version 26. Frequency distribution, percentage, mean, median and standard deviation was computed for the study variables. Binomial and multinomial logistic regression analyses were conducted to examine the association between the socio-demographic, obstetric factors, process attributes of quality and client satisfaction. Variables in the binomial logistic regression with a p-value below 0.20 were taken for multinomial logistic regression. The level of significance was taken at $\alpha = 0.05$. Estimates with their 95%confidence intervals (CIs) and p-values were reported. The analyzed data were presented using tables and graphs.

Data quality Control

The questionnaire was pretested in Attat hospital (5%) which was not a part of the study. Training was given for data collectors. The collected data was checked for completeness and relevance

Operational definitions

Overall satisfaction level: respondents were classified as satisfied (if they recorded more than the mean (43.2) satisfaction score) or not satisfied (if they recorded less than the mean)

Quality antenatal care: measured by availability of laboratory tests, drugs, infrastructure, equipments, service provision, procedure performance, counseling and maternal satisfaction

Ethical issue

Ethical clearance was taken from the school of public health of Addis Ababa University research ethics committee. Informed consent was obtained from the participant after explaining the purpose of the study. Confidentiality was kept by avoiding names and other personal identification. The respondents also were aware on as they have a full right do not to engage in the study or cease the study when they wanted

Dissemination plan

The result and recommendation will be disseminated to the community, local authorities, and other relevant agencies that will be potentially benefited from the study. Efforts will be made to publish in peer reviewed journal and to make presentation in various seminars and workshop

7. Result

Socio demographic characteristics of the respondent

Out of 409 sampled pregnant women attending ANC clinic 398 (97.3%) were responded. Majority of the women 159(39.4%) were in the age group of 25–29 years. About 27.1% of the respondents had primary education. 95% of the respondents were married. About 295(74.1%) of respondents were from urban. Almost half of respondents (49.2%) were followers of orthodox religion. Slightly more than half (56.5%) of the respondents were housewives.

Table 1 Socio demographic characteristics of respondents in Wolkite town public health facilities, 2023 (n=398)

Variables	Category	Frequency n=398	Present
Age	<20	20	5
	20-24	122	30.7
	25-29	157	39.4
	30-34	70	17.6
	>/=35	29	7.3
Religion	Muslim	132	33.2
	Orthodox	196	49.2
	Protestant	50	12.6
	Catholic	15	3.8
	Adventist	5	1.3
Education	No formal education	105	26.4
	Primary education	108	27.1
	Secondary education	93	23.4
	Above secondary	92	23.1
Marital status	Single	11	2.8
	Married	378	95.0

	Divorced	9	2.3
Occupation	housewife	225	56.5
	daily labour	30	7.5
	Gov't. Employee	35	8.8
	student	21	5.3
	Merchant	77	19.3
	Private	10	2.5
Resident	Urban	295	74.1
	Rural	103	25.9
Income	<3000	96	24.1
	>/=3000	302	75.9

Obstetric history of the respondents

About 141 (35.4%) 0f respondents were expecting their first child and three hundred twenty nine (82.7%) respondents revealed that their pregnancy was intended. Regarding frequency of contacts, 133 (33.4%) contacted the ANC clinic for the first time then 97(24.4%) second, 88(22.1) third, 40(10.1%) fourth and 40(10.1%) more than fourth. About two hundred fifty seven (64.6%) respondents began their first ANC contact in the second trimesters of gestation. About 13 (3.3%) women were encountered abortion and 2 (0.5%) encountered stillbirth.

Table 2Obstetric characteristics of respondents in Wolkite town public health facilities, 2023 (n=398)

Variable	Category	Frequency	Present
First pregnancy	Yes	141	35.4
	No	257	64.6
Pregnancy status	Planned	329	82.7
	Not planned	69	17.3
Number of children	None	144	36.2
	one	151	37.9
	two	68	17.1
	three	30	7.5
	>/=4	5	1.3
Gestational age	First trimester	36	9.0
	Second trimester	229	57.5
	Third trimester	133	33.4
Number of ANC contact	First	133	33.4
	second	97	24.4
	third	88	22.1
	fourth	40	10.1
	>four	40	10.1
Gestational age at first contact	First	107	26.9
	second	257	64.6
	third	34	8.5
History of abortion	Yes	13	3.3
	No	385	96.7
History of still birth	Yes	2	0.5

	No	396	99.5

Structural attributes of quality

Concerning essential equipments for ANC all health facilities were supplied with weight scale, stethoscope, measuring tape, clean and surgical glove, thermometer, FANC card, registration and referral book clinical management guideline, examination couch. Regarding availability of laboratory facilities, syphilis test, urine analysis test, HIV test, hepatitis B surface antigen (HBSAg) test, pregnancy test were available in all health facilities. But complete blood count (CBC) machine was available only in the hospital and one health center. Hemoglobin test was available in all health facilities, except one health center. Concerning facility sanitation, all health facilities had toilet around ANC. There was no water for washing hands in any of the health facilities. Electricity was available in all of the health facilities.

Regarding medical supplies, tetanus toxoid vaccine (TTV), iron, quartem, amoxicillin, metronidazole, mebendazole, and cotri-moxazole were available in all health facilities. But methyldopa was available in none of the facilities. Regarding training almost all of the health professionals had not taken training related to ANC service with in twelve months of the survey

Process attributes of quality

About 311(78.1%) respondents were not counseled on BPCR plan. Of counseled women, 84 on selecting professionals, 73 on place of birth, 47 on delivery place and emergency transportation, 37on items to have on hand at home for emergency and transport, 20 on blood donors and money and 18 clothes for the baby

Concerning counseling on danger signs of pregnancy, 230(57.8%) respondents were advised on danger signs of pregnancy. Of counseled mothers, 195 on vaginal bleeding, 104 on severe headache, 169 on offensive vaginal discharge, 116 on blurred vision, 68 on facial and leg edema and 183 on decreased fetal movement

About237 (59.5%) of the respondents were advised on nutrition and only 183(46%) of respondents were counseled on PMTCT of HIV

Regarding services given and procedure performed to pregnant women, iron/folic acid was given to 352 (88.4%) respondents, majority 319(80.2%) had blood group and RH test, 262(65.8%) had hemoglobin test, 258(64.8%) had venereal disease research laboratory (VDRL) test, and

206(51.8%) had urine test. For majority 388(97.5%) of women gestational age was measured respectively.

About 355(89.2%), 264(66.3%), 259(65.1%) and 229(57.5%) of women fetal heart rate, blood pressure, weight and uterine height were measured

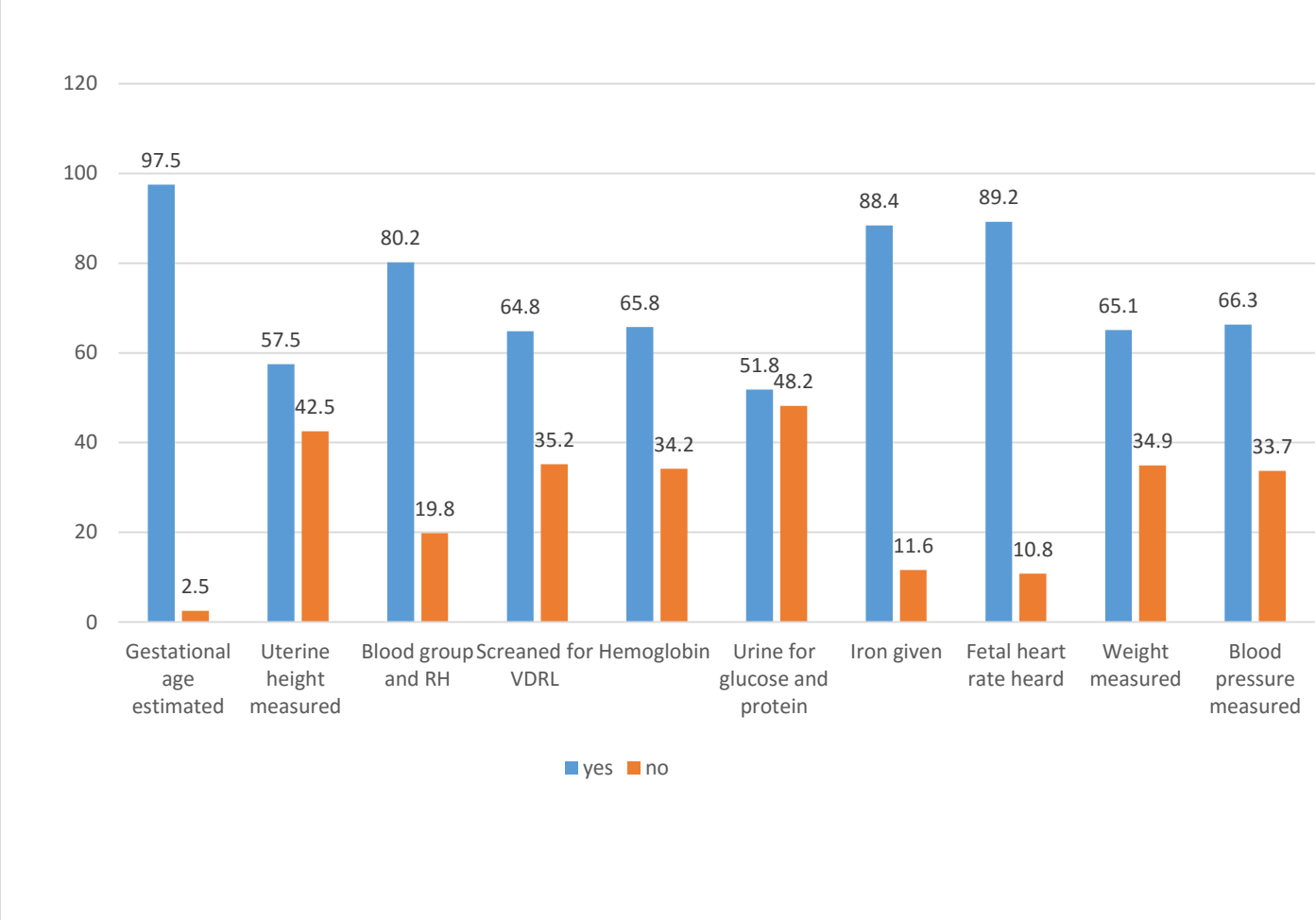

Figure 3 percentage distribution of baseline laboratory investigations done and procedures performed for respondents in Wolkite town public health facilities, 2023 (n=398)

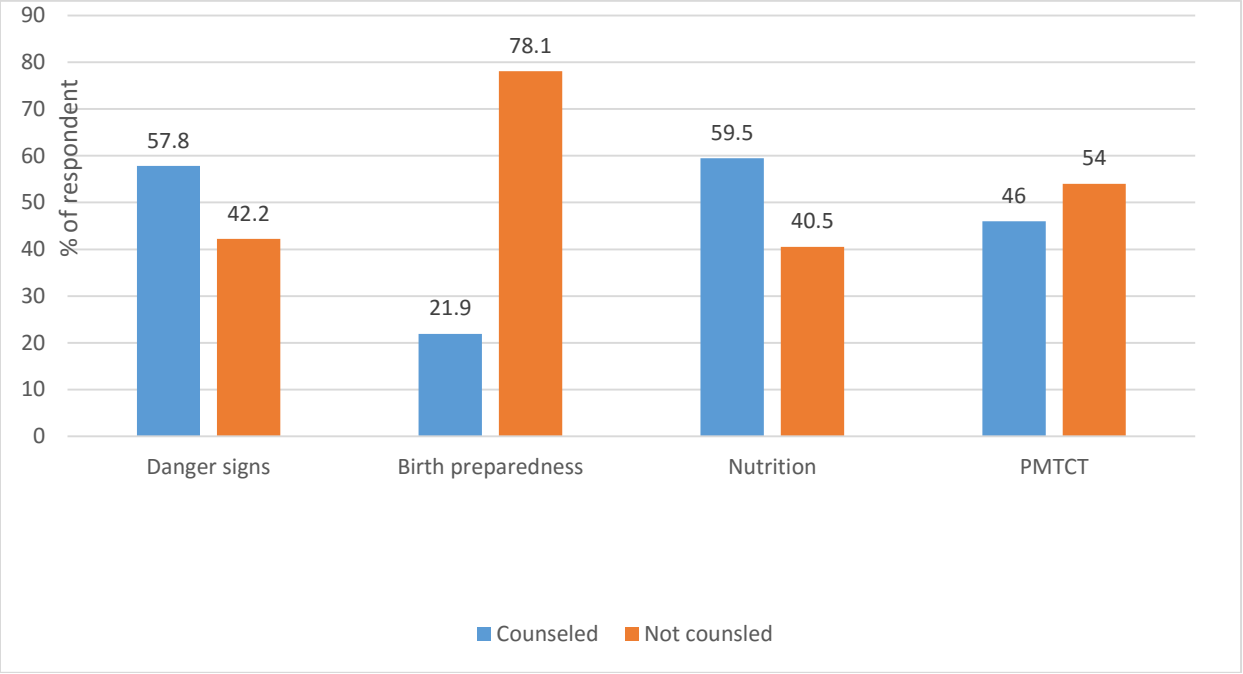

Figure 4 percentage distribution of respondents not counseled on different maternal and child health related issues in ANC services of public health facilities in Wolkite town, 2023 (n=398)

Outcome attributes of quality

Maternal satisfaction was measured by 12 items each having five point Likert scale from strongly disagree (1) to strongly agree (5) with (Cronbach's α of 0.93). The mean and median score for maternal satisfaction on the ANC service received were 43.2 and 43 respectively with standard deviation of 7.7.Respondents were classified as not satisfied for strongly disagree, disagree and uncertain and or satisfied for strongly agree and agree. 48% % of respondent were satisfied with ANC services. From 60 maximum points mothers who recorded > the mean were regarded as they were satisfied and otherwise not.

Absence of clean latrine & adequate water supply, absence of privacy during consultation time, long waiting time and in adequate waiting area and seats were principal reasons stated by the respondents for non-satisfaction for ANC service received.

Table 3maternal satisfaction among antenatal respondents of public health facilities in Wolkite town, 2023 (n=398)

Item	Strongly disagree	Disagree	Uncertain	Agree	Strongly disagree
Professional's greeting		30(7.5)	80(20.1)	219(55)	69(17.3)
Waiting time	16(4)	121(30.4)	105(26.4)	125(31.4)	31(7.8)
Waiting area with seats		65(16.3)	119(29.9)	161(40.5)	53(13.3)
Professional's understandability		12(3)	116(29.1)	188(47.2)	82(20.6)
Cost			35(8.8)	242(60.8)	121(30.4)
Privacy during consultation was kept	26(6.5)	138(34.7)	102(25.6)	116(29.1)	16(4)
Cleanliness of procedure			85(21.4)	223(56)	90(22.6)
Clean latrine & adequate water supply	115(28.9)	113(28.4)	91(22.9)	74(18.6)	5(1.3)
Obtained full information about ANC		8(2)	104(26.1)	175(44)	111(27.9)
Respondent wants to continue			72(18.1)	222(55.8)	104(26.1)
Recommend for others		49(12.3)	150(37.7)	152(38.2)	47(11.8)
Happy with all the services		11(2.8)	108(27.1)	176(44.2)	103(25.9)

Predictors of client satisfaction

Binomial logistic regression was used and those variables with p-values below 0.2 were incorporated in to multinomial logistic regression. In the binomial logistic regression, there was significant association between maternal satisfaction and age of the respondent, residence, gravidity, number of children, pregnancy status, frequency of ANC visit, counseling on nutrition, PMTCT of HIV, BPCR, danger signs of pregnancy, provision of iron, measuring weight and blood pressure, estimation of gestational age.

In the multinomial logistic regression, Residence (adjusted odd ratio (AOR)= 5.839 95% CI 3.175, 10.739), pregnancy status(AOR = 6.216 95% CI 2.943, 13.127), frequency of ANC visit(AOR = 1.804 95% CI 1.056, 3.082), counseling on nutrition(AOR = 2.875 95% CI 1.709, 4.835), PMTCT of HIV(AOR = 2.337 95% CI 1.427, 3.827) and BPCR (AOR = 2.426 95% CI 1.341, 4.389)and provision of iron (AOR= 2.816 95% CI 1.249, 6.350)continued to have an association with client satisfaction.

Table4: Maternal satisfaction on binomial logistic regression analysis among respondents in public health facilities of Wolkite town, 2023 (n=398)

Factor		**Satisfaction**		**COR (95%CI)**
		Yes	**No**	
Age	**<20**	**15**	**14**	
	20-24	**44**	**78**	**0.230(0.063, 0.841)**
	25-29	**87**	**70**	**0.478(0.123, 1.857)**
	30-34	**34**	**36**	**0.271(0.063, 1.157)**
	≥35	**11**	**9**	**0.236(0.043, 1.289)**
Resident	**Urban**	**171**	**124**	**6.006(3.021, 11.941)**
	Rural	**20**	**83**	
First pregnancy	**Yes**	**65**	**76**	**0.588(0.303, 1.143)**
	No	**126**	**131**	
Number of children	**Two or less**	**170**	**193**	**0.229(0.079, 0.660)**

	More than two	**21**	**14**	
Pregnancy status	**Planned**	**175**	**154**	**3.985(1.928, 8.235)**
	Un planned	**16**	**53**	
Frequency of ANC visit	**First visit**	**55**	**78**	
	Revisit	**136**	**129**	**2.128(1.060, 4.272)**
Counseled on nutrition	**Yes**	**130**	**107**	**2.055(1.193, 3.538)**
	No	**61**	**100**	
Counseled on BPCR	**Yes**	**60**	**27**	**2.176(1.165, 4.064)**
	No	**131**	**180**	
Counseled on PMTCT	**Yes**	**107**	**76**	**2.063(1.218, 3.495)**
	No	**84**	**131**	
Danger signs	**Yes**	**106**	**124**	**0.653(0.383, 1.115)**
	No	**85**	**83**	
Iron given	**Yes**	**179**	**173**	**2.376(1.011, 5.583)**
	No	**12**	**34**	
Gestational age estimated	**Yes**	**188**	**200**	**0.288(0.070, 1.188)**
	No	**3**	**7**	
Weight measured	**Yes**	**114**	**145**	**0.607(0.340, 1.085**
	No	**77**	**62**	
Blood pressure measured	**Yes**	**115**	**149**	**0.541(0.301, 0.973)**
	No	**76**	**58**	

Maternal satisfaction with ANC service was associated with residence, urban women were almost six times more likely satisfied than their rural counterpart (AOR = 5.839 95% CI 3.175, 10.739). Women who had repeated ANC contacts were more likely satisfied than those who had first contact (AOR = 1.804 95% CI 1.056, 3.082). Mother with planned pregnancy were more likely to be satisfied than that of unplanned mothers (AOR = 6.216 95% CI 2.943, 13.127).

Women who were talked on nutrition were more likely satisfied than those who were not talked (AOR = 2.875 95% CI 1.709, 4.835), women who were counseled on BPCR were more likely satisfied than those who were not counseled (AOR = 2.426 95% CI 1.341, 4.389),

Women who were talked on PMTCT of HIV were more likely satisfied than those who were not talked (AOR = 2.337 95% CI 1.427, 3.827). Women who were given iron pills were almost three times more likely satisfied than those who were not given at all. (AOR= 2.816 95% CI 1.249, 6.350)

Table5: Predictors of maternal satisfaction among respondents in public health facilities of Wolkite town, 2023 (n=398)

Factor		Satisfaction		COR (95% CI)	AOR (95%CI)	P value
		Yes	No			
Resident	**Urban**	**171**	**124**	**6.006(3.021, 11.941)**	**5.839(3.175, 10.739)**	**<0.001**
	Rural	**20**	**83**			
Frequency of ANC visit	**First visit**	**55**	**78**			
	Revisit	**136**	**129**	**2.128(1.060, 4.272)**	**1.804(1.056, 3.082)**	**0.031**
Pregnancy status	**Planned**	**175**	**154**	**3.985(1.928, 8.235)**	**6.216(2.943, 13.127)**	**<0.001**
	Un planned	**16**	**53**			
Counseled on nutrition	**Yes**	**130**	**107**	**2.005(1.193, 3.538)**	**2.875(1.709, 4.835)**	**<0.001**
	No	**61**	**100**			

Counseled on BPCR	**Yes**	**60**	**27**	**2.176(1.165, 4.064)**	**2.426(1.341, 4.389)**	**0.003**
	No	**131**	**180**			
Counseled on PMTCT	**Yes**	**107**	**76**	**2.063(1.218, 3.495)**	**2.337(1.427, 3.827)**	**0.001**
	No	**84**	**131**			
Iron given	**Yes**	**179**	**173**	**2.376(1.011, 5.583)**	**2.816(1.249, 6.350**	**0.013**
	No	**12**	**34**			

8. Discussion

Based on this study majority 311(78.1%) of respondents were not counseled on birth preparedness and complication readiness plan. This finding is in line with study conducted in public health facilities of Chencha district(17). This may be due to lack of health professional training concerning birth preparedness. It could also be due to health professionals not give focus for birth preparedness counseling.

This study demonstrated that 262(65.8%) of respondents had hemoglobin test which is higher than study conducted in Bahir-Dar (30.6%)(25). This indicates that the uninterrupted availability of laboratory service with full access of reagent provision with uninterrupted provision. Regarding provision of theraputics on this study iron provision is higher 352 (88.4%) than study conducted in west Ethiopia 255 (80.7%)(18).This can be due to continuous provision of iron

Only 183(46%) of respondents were talked on PMTCT of HIV. The finding of this study is lower than study conducted in Bahi-Dar(25). This might indicate that there is lack of staff training concerning PMTCT of HIV. WHO recommends that blood pressure and weight of pregnant women should be measured in each visit(26). According to the result of this study 139(34.9%) and 134(33.7%) of respondents were not measured respectively. Which make recognition of pregnant mothers who require particular attention challenging

About 48% % of respondent were satisfied with ANC services. It is lower compared with the finding of studies in West Ethiopia 79.7%, southwest of Ethiopia 66%, Bele Gasgar 55%and Chencha district 52.6% (17,18,23,27). It is, however, higher than the study conducted Gamo Gofa Zone 21.5(19). The inconsistency could be due to variation in the mother's perception and presupposition of services and/or difference in the socioeconomic background of the respondents.

This study showed that urban women were almost six times more likely satisfied than rural women (AOR = 5.839 95% CI 3.175, 10.739). The finding is consistent with the studies conducted in Nepal and east Africa(28,29). This might be explained by the distance of the health facilities.

This study demonstrated that women who had follow up ANC visits were more likely satisfied than those who had first visit (AOR = 1.804 95% CI 1.056, 3.082). Similar finding was reported

in study conducted in Bahir-Dar(25). This could be explained by realizing the importance of the service, friendly with care giver and experience.

According to this study pregnant women with planned pregnancy were more likely to be satisfied than that of unplanned women (AOR = 6.216 95% CI 2.943, 13.127). This finding is in line with findings in Chencha district and Jimma(16,17). This could due to women who had unintended pregnancy could be uncomfortable in terms of confidentiality due to possible stigma if the pregnancy is out of the marriage.

This study showed that mothers who were talked on nutrition were more satisfied than those who were not talked (AOR = 2.875 95% CI 1.709, 4.835). This finding is consistent with the studies conducted in west Ethiopia and Gamo Gofa Zone(18,19). This might be explained by mothers who acquired the service they need are more satisfied than those who didn't acquire the service they expected.

According to this study mothers who were advised on BPCR were more likely satisfied than those who were not advised (AOR = 2.426 95% CI 1.341, 4.389). Other study in Chencha district also supported this as causes of satisfaction with services(17). This might be due to the perception and experience of the women with respect to the care as well as presupposition.

The finding of this study showed that mothers who were given iron pills were almost three times more likely satisfied than those who were not given at all. (AOR= 2.816 95% CI 1.249, 6.350). This result is similar with the studies conducted in Gamo Gofa Zone and Bele Gasgar district(19,23)

Strength and Limitations of the study

Strength of the study

Various techniques of data collection were employed

Limitations of the study

This study was not supplemented by qualitative data

Time constraint

9. Conclusion and Recommendations

Generally, maternal satisfaction with antenatal care services in this study was low. Absence of clean latrine & adequate water supply was the main reason stated by respondents.

Training related to ANC service was not given to health professionals regularly

The principal factors associated with maternal satisfaction were residence, pregnancy status, frequency of ANC visit, counseling on nutrition, PMTCT of HIV and BPCR plan and provision of iron

Advanced on the job training related with ANC services should be provided consistently

Health professionals should give emphasis to counseling mothers on birth preparedness, nutrition and mother to child transmission of HIV.

Vital signs should be measured consistently

The local government should work to improve accessibility of safe and potable water supply by collaborating community members and other stakeholders

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Annex

Questionnaire

Consent Form

Addis Ababa University College of health science school of public health in track of health service management

How are you? ---------- I am here to collect data for a project titled Quality of antenatal care services and associated factors among pregnant women attending Wolkite town public health facilities. For the accomplishment of this study, you are kindly requested to respond genuinely and voluntary with patience. This will help us to improve quality antenatal care services at health facilities based on your answers to our questions. Your name will not be written in this form. All information given by you will be kept strictly confidential. Your participation is voluntary and you are not obligate to answer any question you do not wish to answer. If you fill discomfort with the interview, please fill free to drop it any time you want. Thank you very much for your willingness to listen to me.

Name of data collector_____ Signature_____ date_____

Thank you!!

I. Socio-demographic information

No		
1.	Respondents age	…….years
2.	What is your religion?	a. Muslim b. Orthodox c. Protestant d. Catholic e. Adventist
3.	Educational status of respondent	a. No formal education b. Primary school c. Secondary school d. Above secondary
4.	What is your marital status?	a. Single b. Married c. Divorced d. Widowed
5.	What is your main occupation?	a. Daily laborer b. Housewife c. Gov't. Employee d. Student e. Merchant f. Private
6.	Residence	1. Urban 2. Rural
7.	Income level per month	_____Ethiopian birr

II. Obstetric information

No		
8	Is this your first pregnancy?	1. Yes 2. No
9.	Is the pregnancy planned?	1. Yes 2. No
10	How many children do you have?	1.None 2.One 3.Two 4.Three 5.Four>
11	Gestational age	……weeks./months
12	Number of antenatal visits	1. First 2. Second 3. Third 4. Fourth 5. > Four
13	When was your first ANC visit?	
14	History of still birth	1. Yes 2. No
15	History of abortion	1. Yes 2. No

4. Dimension of quality

	Assessment of structure of care		
1	**ANC / Consultation room**	Yes	No
a.	Separate room		
b.	Registration book and referral book		
c.	Clinical management guide line		
d.	Examination Table/couch		
e.	Fetal stethoscope (Pinard)		

f.	Measuring Tap		
g.	Weighting scale		
h.	Stethoscope & Blood pressure Apparatus		
i.	Maternal & child health cards (FANC)		
j.	Thermometer		
2	**Facilities sanitation**		
a.	Toilet		
b.	Hand wash room with Soap		
c.	Electricity		
d.	Drinking water facility		
3	**Laboratory Facilities**		
a.	Syphilis test		
b.	Urine Analysis test		
c.	HIV test		
d.	HBSAg		
e.	Pregnancy test		
f.	Hemoglobin test		
g.	Albumin		
h.	CBC s		

10	Medical Supplies		
a.	TT Vaccines available		
b.	Tetanus toxoid		
c.	Irion folic		
d.	Ferrous sulphate		
e.	Quartem		
f.	Calcium		
g.	Amoxicillin		
h.	Metronidazole		
i.	Mebendazole		
j.	Cotri-moxazole		
k.	Aldomet		
4.	**Availability of skilled health personal**	Training status	Year of training
a.	Generalist medical doctor		
b.	Nursing professionals (excluding degree nurses)		
c.	Degree nurses (e.g. BSc. Nurse)		
d.	Midwifery professionals (excluding degree midwives)		
e.	Degree midwives		

f.	Enrolled nurse/enrolled midwifes		
g.	Health officers		

III. Process aspects of services

1	Counseling on Danger signs on pregnancy	Yes	No
a.	Vagina bleeding		
a.	Severe headache		
b.	Offensive vaginal discharge		
c.	Blurred vision		
d.	Face and facial edema		
e.	Decreased fetal movement		
2	Counseling on birth preparedness and complication readiness		
a.	Counseling on place of birth		
b.	Counseling on transport		
c.	Counseling on money		
d.	Counseling on selection of professionals		
e.	Counseling on blood donors		
f.	Counseling on clothes for the baby		
g.	Counseling on delivery place and emergency transportation		
h.	Counseling on items to have on hand at home for emergency at the time of observation		
3	Counseling on nutrition		

4	Counseling on prevention of mother to child transmission of HIV		
	Service and procedures performance check list	Yes	No
a.	Weight measured		
b.	Blood pressure measured		
c.	Gestational age estimated		
d.	Uterine height measured		
e.	Blood group and Rh test		
f.	VDRL test		
g.	Hemoglobin test		
h.	Urine test for glucose and albumin		
i.	Iron/folic acid given		
j.	Fetal heart rate measured		

Client satisfaction survey

No	Item	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
1.	Provider's greeting was good and in a friendly way(polite)					
2.	Waiting time was fair					
3.	Waiting area was adequate & with seats					
4.	The provider was easy to understand					
5.	The cost incurred for the service was fair					
6.	Privacy during consultation was maintained					
7.	Provider perform the procedure with cleanliness and sanitation					
8.	The antenatal clinic has clean latrine & adequate water supply					
9.	You feel that today you received full information about ANC					
10.	You want to continue the rest ANC visits in this					

	health facility					
11.	You recommend your relatives &others to attend their antenatal visit in this facility					
12.	Generally you are happy with all the services you have got today					

አማርኛ መጠይቅ

የስምምነት ቅጽ

ጤና ይስጥልኝ እንደምን ነዎት?

እኔ ---------- በወልቂጤ ከተማ በቅድመ ወሊድ እንክብካቤ አገልግሎት ጥራት ላይ የሚካሄደውን ጥናት ከመረጃ ሰብሳቢዎች አንዱ ነኝ፡፡ በዚህ ጥናት ላይ እንዲሳተፉ ተመርጠዋል፡፡ የዚህጥናት አላማ በወልቂጤ ከተማ ባሉ በመንግስት ጤና ተቋሞች ዉስጥ የሚሰጠዉን የቅድመወሊድ እንክብካቤ ክትትል ጥራት ለማሻሻል ጠቃሚ ሃሳቦችን ለመሰብሰብ ሲሆን ከእርስዎ የምናገኘዉ ሃሳብ ትልቅ አስተዋጽኦ ያለዉ መሆኑን እየገለጽን በዚህ ምርምር ውስጥ እርስዎ ሲሳተፉ የሚሰጡትን ሃሳብ ሚስጥራዊነቱ በከፍተኛ ሁኔታ የተጠበቀ እንደሆነ እያረጋገጥን ነዉ፡፡ በሚሰጡት ማንኛውም አስተያየት እና የመልስ የመረጃ ወረቀት ላይ የእርስዎ ስም በፍፁም አይፃፍም፡፡ በዚህ ጥናት ላይ መሳተፍ በእርስዎ ላይ ሚያሳድረው ጉዳት የለም፡፡ መልሱን ከአማራጮቹ የእርስዎን ትክክለኛ ሁኔታ የሚገልጸዉን እንዲመልሱልን በትህትና እንጠይቃለን፡፡ተስማምተዋል? የጥናቱን ገለፃ አዳምጬ ተረድቼዋለሁ ለመሳተፍ ተስማምቻለሁ፡፡

ቃለ-መጠይቁን ያደረገው ሰው ስም---------- ፊርማ.....ቀን.....

የማህበራዊ፣ስነ-ሕዝብ እና እርግዝና መረጃ መሰብሰቢያ መጠይቅ

ተ.ቁ	ጥያቄዎች	መልስ እና መለያ
1	እድሜ?	.....አመት
2	ሐይማኖት?	1.ኦርቶዶክስ 2. ሙስሊም 3.ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ----
3	የትምህርትደረጃ?	1. መደበኛ ትምርት ያልተማረች 2.አንደኛ ደረጃ ት/ት 3.ሁለተኛ ደረጃ ት/ት 4.ከዛ በላይ
4	የጋብቻሁኔታ?	1. ያገባች 2. ያላገባች 3.የፈታች 4.የሞተባት
5	የስራሁኔታ?	1. የቀን ሰራተኛ 2. የቤት እመቤት 3. የመንግስት ሰራተኛ 4. ተማሪ 5. ነጋዴ

		6. የግል ስራ
6	መኖሪያ?	1. ከተማ 2. ገጠር
7	በአማካኝ የሚያገኙት የወር ገቢዎት ምንያ ህል ነው?	
8	ይህ የመጀመሪያ እርግዝናዎ ነዉ?	1.አዎ 2. አይደለም
9	እርግዝናዉ የታቀደ ነው?	1.አዎ 2. አይደለም
10	ስንት ልጆች አልዎት?	
11	የፅንሱ እድሜ ስንት ነው?	
12	ስንተኛ የርግዝና ክትትልዎ ነው?	
13	የመጀመሪያ ቅድመ ምርመራዎ መቼ ነበር?	
14	ውርጃ ተከስቶብዎት ያውቃል?	1. አዎ 2. አያቅም
15	ሞቶ የተወለደ?	1. አዎ 2. አይ

የደንበኛ እርካታ ዳሰሳ

		በጣም አልስማማም	አልስማማም	እርግጠኛ አይደለሁም	እስማማለሁ	በጣም አስማማለሁ
1.	የባለሙያው ሰላምታ ጥሩ እና ወዳጃዊ በሆነ መንገድ (በትህትና) ነበር?					
2.	የጥበቃ ጊዜ ፍትሃዊ ነበር?					
3.	በቂ የመቆያ እና የመቀመጫ ቦታ ነበር?					
4.	ባለሙያው ለመረዳት ቀላል ነበር?					
5.	ለአገልግሎቱ የሚወጣው ወጪ ፍትሃዊ ነው?					
6.	በምክክር ወቅት ግላዊነት ተጠብቆ ቆይቷል?					
7.	ባለሙያው ሂደቱን በንጽህና ያከናውናል?					
8.	የቅድመ ወሊድ እንክብካቤ ክሊኒኩ ንጹህ ሽንት ቤት እና በቂ የውሃ አቅርቦት አለው?					
9.	ዛሬ ስለ ቅድመ ወሊድ እንክብካቤ ሙሉ መረጃ እንደደረሰዎት ይሰማዎታል?					
10.	በዚህ የጤና ተቋም ውስጥ የቀሩትን የቅድመ ወሊድ እንክብካቤ ጉብኝቶችን መቀጠል ይፈልጋሉ?					

11.	በዚህ ተቋም ውስጥ ዘመዶችዎን እና ሌሎችን የቅድመ ወሊድ እንክብካቤ ጉብኝታቸውን እንዲከታተሉ ይመክራሉ?					
12.	በአጠቃላይ ዛሬ ባገኙት አገልግሎት ሁሉ ደስተኛነዎት?					