



**WOLKITE UNIVERSITY COLLEGE OF MEDICINE AND  
HEALTH SCIENCE DEPARTMENT OF PUBLIC HEALTH OFFICER**

**DELAYED INITIATION OF ANC FOLLOW UP AND IT'S ASSOCIATED FACTORS  
AMONG PREGNANT WOMEN IN GURAGE ZONE, SNNPR, ETHIOPIA, 2021**

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RESEARCH TO BE SUBMITTED TO WOLKITE UNIVERSITY COLLEGE OF MEDICINE  
AND HEALTH SCIENCES DEPARTMENT OF PUBLIC HEALTH OFFICERS IN  
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF  
BACHELOR OF SCIENCE IN PUBLIC HEALTH

**WOLKITE, ETHOPIA**

**OCTOBER, 2021**

## **ACKNOWLEDGEMENT**

First of all we would like to thank our families who help us to reach this level. Secondly we are thankful to Wolkite University, College of Health Science, department of public health for providing this opportunity to do research on determinants of delayed initiation of ANC among pregnant women Attending in selected health facilities in Gurage Zone, SNNPR . Last but not least, We would like to thank our advisors, Mr. Haimanot and Mrs. Fedila for their guidance valuable comments and also people who help us materially, share their idea.

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## LIST OF ACRONYMS

ANC	Antenatal Care
AOR	Adjusted odds ratio
CI	Confidence Interval
COR	Crude Odds ratio
EDHS	Ethiopian Demographic and Health survey
IQR	Inter Quartile Range
LNMP	Last normal menstrual period
MMR	Maternal Mortality Ratio
OR	Odds ratio
SPSS	Statistical Package for Social Science
SSA	Sub-Saharan Africa
WHO	World Health Organizatio

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Figure 1:- Conceptual frame work adapted from literatures (11,12, 27) on late initiation of antenatal care follow up and associated factors .....**Error! Bookmark not defined.**

## **Summary**

**INTRODUCTION:** Antenatal care (ANC) is special care for pregnant women with the aim of preventing, detecting and treating health problems in both the fetus and mother. Early ANC attendance promotes early detection and treatment of complications which result in proper management during delivery and puerperium. If a women came for ANC beyond 12 weeks of gestation for the first time during the pregnancy, she was considered as having late initiation of ANC. Those are more likely to attain poor outcomes of pregnancy like foeto maternal transmission of HIV/AIDS, post term delivery related to wrong dating, high risk of morbidity and mortality were in medically ill women and also there is so many poor outcome. The main problem we identified in this study was pregnant women who came from far distance more likely to start late initiation of ANC than the nearest one.

**OBJECTIVE:** This study is aimed to determine the prevalence of late initiations for antenatal care follow up and its associated factors among pregnant women attending in selected health facilities in Gurage Zone, southern Ethiopia, 2021

**METHODS:** Institutional based cross-sectional study was conducted in Gurage zone among 347 pregnant mothers, who come for first ANC follow up. The study subjects was selected by systematic sampling technique from August to October, 2021. The data was collected using pretested structured interviewer administered questionnaire. Data entry and analysis was made by using epi data and spss respectively. Both binary and multivariable logistic regression analysis with 95 % confidence level was carried out.

**RESULT:** This study indicated that 63.5% of the attendants initiated late. Multivariate logistic regression analysis showed that no formal education AOR= 95% CI: 2.424(1.155,5.090) , complication during previous pregnancy AOR= 95% CI:6.954(2.877,16.809) , having no advised to initiation of ANC time AOR= 955 CI:0.509(0.263,0.985) and having distance far from 3000 Meter from health center AOR= 955 CI: 2.249(1.152,4.389) were significantly associated.

**CONCLUTION AND RECOMMENDATTION:** This study revealed that the level of late ANC was found to be 63.5% The major factor for being late were found to be reported no formal education, complication during previous complication, no advice for ANC initiation and distance from the health center. District and zonal health office should create awareness about the importance of early initiation of ANC, make the service to closer to the community and increase contraceptive utilization.

## CHAPTER ONE: INTRODUCTION

### 1.1. Background of the Study

Antenatal care(ANC) is a care given to pregnant mother from the time of conception until the beginning of labor to avoid and minimize possible risks of morbidity and mortality. The advantage of ANC is Maternal mortality reduction remains a priority agenda in the new sustainable development goals (SDGs ).However; it remains Globally, 287,000 women die of pregnancy-related complications annually, with 99% of it occurring in the developing world and 1% in developed countries in 2015 (1). Hence, World Health Organization (WHO) recommends that a pregnant woman Under normal conditions should have at least eight antenatal care contact, the first of which should go on during the first trimester (2,18)

Complications during pregnancy and childbirth are the leading causes of death and disability among women of reproductive age in developing countries. Sub-Saharan Africa region including Ethiopia has contributing 66% of the mortality. Ethiopia is one of the six countries that contributes to >50% of all maternal deaths globally (2, 3).

Most of the causes of maternal deaths are preventable, detectable, and treatable. Therefore, immediate action is needed to meet the ambitions of SDG 2030 for eliminating preventable causes of maternal death with a special attention to Sub- Saharan Africa (4) Antenatal care is one of the key strategies for reducing maternal and neonatal morbidity and mortality directly through the detection and treatment of pregnancy related illness, or indirectly through detection of women at risk of complications of delivery and ensuring that they deliver in a suitably equipped facility(5). During ANC, health provider's monitored and identifies risk factors related to poor maternal and birth outcomes.

Once problems are identified, providers can initiate appropriate medical and educational interventions to reduce the risks for maternal-neonatal morbidity and mortality (6, 7).However, early ANC visit is very low (24%) in low income countries compared with 81.9% in developed countries (8).ANC services, especially the first visit, includes essential Screening for health conditions such as human immune deficiency virus (HIV) and Syphilis; for HIV infected Pregnant women, the maximum benefit of antiretroviral therapy (ART) to prevent mother-to-child transmission (PMTCT) of HIV requires early presentation to the health system. Screening for syphilis should be offered to all pregnant women at an early stage of ANC because treatment of syphilis is beneficial to the mother and the fetus.

In pregnant women with early untreated Syphilis, 70 to 100% of the infants will be infected and one-third will be stillborn. Furthermore, iron supplementation and immunizations, such as Tetanus Toxoid (TT), given during pregnancy can be life-saving for both mothers and infants if it is initiated at an early stage of pregnancy (9–12). Early initiation of ANC also has a big role in reducing bad prenatal outcomes like preterm birth, low birth weight and jaundice (1, 14). The aims of early ANC booking are identification of complications or risk factors for complications which Enable early interventions to alleviate or mitigate the effects of such complications on mothers and unborn Babies (15).

Since 2003, the Ethiopian government has been deploying specially trained new cadres of community based workers called Health Extension Workers (HEWs). HEWs are expected to spend 75% of their time in outreach activities by going from house to house in their respective kebeles. They are trained on how to provide care to pregnant women throughout pregnancy, birth and post natal period (16).

## **1.2 Statement of the Problem;**

The burden is high in developing country accounting for 96% of the global maternal death in 2017,with sub-saharan Africa including Ethiopia contributing 66% of mortality. In late initiation of ANC has adverse effect for both the mother and the fetus , increase risk of mother to child transmission of HIV/ AIDS, syphilis, still birth, preterm birth, low birth weight, post term delivery. The major factors for being late were found to be poor knowledge, unintended pregnancy, distance from health facility, being housewife, bad obstetric history and travel expenses, sickness and rape; in this study distance from health facility were identified as the problem.

There was done multiple intervention to minimize the prevalence of late booking such as increase health facility access on rural area with road and transport service, there was given council for the pregnant mother for the next pregnancy, Health Extension Worker trained for outreach activity by going from house to house in their respective kebele and district and zonal health office created awareness about the importance of early initiation of ANC by make the service closer to the community and increase contraceptive utilization. Hence this study Would identify Prevalence and associated factor with delayed initiation for ANC visit in the area and recommends the stakeholders for the possible solution. In order to decrease child and maternal mortality, it is crucial to know the time of the first ANC visit in Wolkite health center Gurage zone.

### **1. 3. Significance of the study**

This study was identified the prevalence and factors that are related to late initiation of ANC service in the context of the study area, in this study the primary beneficiary for both pregnant women and fetus. In addition to this, the study findings was contributed positively to the existing body of knowledge in the area of maternal, neonatal and child health. The study had been provided valuable information for health profession such , zonal health bureau , gynecologist, public health officers, midwife, and nurse and to improve the service. Also it will serve as base line information upcoming research in the related area.

#### **1.4. Justification of the study**

WHO estimate that more than 80 percent of maternal deaths could be prevented through actions that have been proven to be effective and affordable. Much attention has been focused nationally and internationally on maternal health service. For the outcome of this, ANC coverage is a success story in SSA countries, since over two-thirds of pregnant women (69 percent) have at least one ANC visit .However, coverage of at least four ANC visits and timely initiation is lower at as most of country profiles including Ethiopia(28) .

Despite high magnitude of late initiation for ANC follow up , only few studies have been conducted at national level and as far as my knowledge is concerned no study done in specified area.

Therefore; assessing late ANC follow up and associated factors is essential in the region. Findings of which will have implications for policy makers , health care providers, educators and researchers, to improve or strengthen quality related to provision of ANC. which will contribute in timely initiation of ANC and reduction of maternal morbidity and mortality.

## **CHAPTER TWO: LITERTURE REVIEW**

### **2.1Prevalence of late initiation of ANC follow up**

In worldwide there is a big discrepancy in prevalence of late ANC follow up among pregnant mothers, ranging from 27.5% as in some developed countries(19) and as 88% in some developing countries(20).Low prenatal coverage, few visits, and delayed initiation of antenatal follow up are the predominant problems throughout SSA including Ethiopia results difficulty in accomplishing the WHO recommendation(21). In the developed world, 98% of pregnant women receive antenatal care (ANC) at least once. While in the developing world, ANC use is as low as 68%. The lowest level of ANC use in the world is in South Asia, where only 54% of pregnant women report at least one ANC visit. In sub-Saharan Africa, generally the region with the lowest levels of health care use, 68% of women report at least one antenatal visit and wait around the second trimester.(22) A relatively substantial proportion present for ANC only in the third trimester.5 The minimum antenatal care visits recommended by WHO was possible only for less than about one-third of the pregnant women in some SSA countries like Niger(15%), Ethiopia (19%), Chad (23%), Burundi (33%), Mali and Rwanda (35% ) (23) .The timing of the first ANC visit as well as the total number of ANC visits also affect the quality of ANC that a pregnant woman receives, and under-attending the recommended ANC service may lead to adverse pregnancy outcomes (26). According to Ethiopian Demographic Health Survey (EDHS) 2014, only 17.5 % mothers start ANC early as recommendation. Almost threefold increment from 6 percent in the 2005 EDHS. (27). EDHS 2016 indicated that the percentage of ANC utilization had increased by 32% compared to the preceding EDHS survey and the national coverage was 31.8%.(28) Though good progress has been made in the total number of ANC visits, the prevalence of late ANC initiation is still high in Ethiopia. Research findings from Addis Ababa, Metekel, Hadya Zone, Ambo and Gonder show that the prevalence of late ANC service booking was 59.8%, 55.1%, 68.2%, 86.8% and 64.9%, respectively.(11–29).

## **2.2 Factors associated with late initiation of antenatal care follow up**

### **2.2.1. Socio demographic factors**

A study done In South Western Nigeria , indicated that those women who were aged less than 25 years were more likely to register late compared to those who were older(16). In contrast to the above, results from different region of Ethiopia shows that Women who were aged 25 years and above were more likely to register late compared to those who were less than 25 years (17, 18).

Educational status of women has been found to be associated with timing of ANC. As study conducted In South Western Nigeria those who had primary school education or none, were more likely to register late compared to those who had secondary school education and above(16).

According to EDHS 2016 report 98 percent of women with more than secondary education received ANC from a skilled provider compared with 53 percent of women with no education(19). Study reported that women with educational level of high school and above are register early than those in Elementary and below(2,20).

Study done in Debarq, Northwest Ethiopia showed that married women attend ANC more commonly than divorced or widowed ones(21).

Though the service is free of charge in most of country different literature shows that monthly income is direct association with ANC. Cross sectional study in South Western Nigeria indicated that, those who earned lesser income were more likely to book late compared to those who earned more(16).

Studies in Ethiopia indicated that pregnant women with low monthly income to delay ANC booking were higher compared to their counterparts with high monthly income(12, 17).

Different literatures show that employment status is one determinant factor for timing of ANC initiation. Study at Hossana , Southern Ethiopia shows that women employed in governmental organization were more likely to book antenatal care late than women employed in non-governmental organizations(11).

Studies showed that pregnant mother whose husband had at higher educational level were more likely to initiate late as compared to those whose husband had low educational level (16, 22).

### **2.2.2. Obstetric factors**

Institution based study in south-eastern Tanzania indicates that Prime parity were associated with an earlier antenatal care attendance than multi parity women(23).

Results from study in Debre Berhan Health Institutions, showed that Mothers who had no previous birth experience were more likely to start first ANC visit early than those who had one and above(8).

Studies revealed that women's having unplanned pregnancy had a higher chance of booking late compared to the planned ones (8, 15, 24, 25).

Previous adverse pregnancy outcome is direct effect on current timing of ANC. Study in South Western Nigeria indicate that those who had no previous caesarean delivery, were more likely to book late compared to those with previous caesarean section. In addition to this those who had no complaints in index pregnancy and those who had no problems in the last delivery were more likely to book late compared to those who had problems(16).

Similarly studies revealed that previous experience of a miscarriage or stillbirth were associated with an earlier antenatal care attendance(23, 25).

Institution based cross-sectional study in Gondar; Ethiopia showed that means of pregnancy recognition is determinant factor for timing of ANC visit. Its revealed that pregnant mothers who confirmed their pregnancy by medical checkup or urine test were more likely to start ANC as recommendation(18).

### **2.2.3. Clients related variables**

In most literature knowledge is the most determinant factor for timely initiation of ANC. Result from institutional based cross-sectional study in Zambia showed that mothers who were Inadequate knowledge about ANC were high chance for late ANC attendance than women who had adequate knowledge(15).

Studies in different part of Ethiopia also showed that pregnant mothers who had good knowledge on timing of the first ANC were more likely to start their first ANC visit early as compared to their counterparts(8, 18, 25).

Studies from different developing country show that mother who didn't receive advice had more chance to register late than those who didn't receive advice(10,26).

#### **2.2.4. Past history of service utilization**

Result from cross sectional study done in Addis Ababa showed that Previous utilization of service does not improve timely booking in antenatal care(11).

In contrary to this, study at Gondar, Northwest Ethiopia indicated that previous early antenatal service utilization improves timely booking. Those women who booked early in previous pregnancy were likely to book earlier compared to those who booked lately(20).

### 2.3 Association of variables

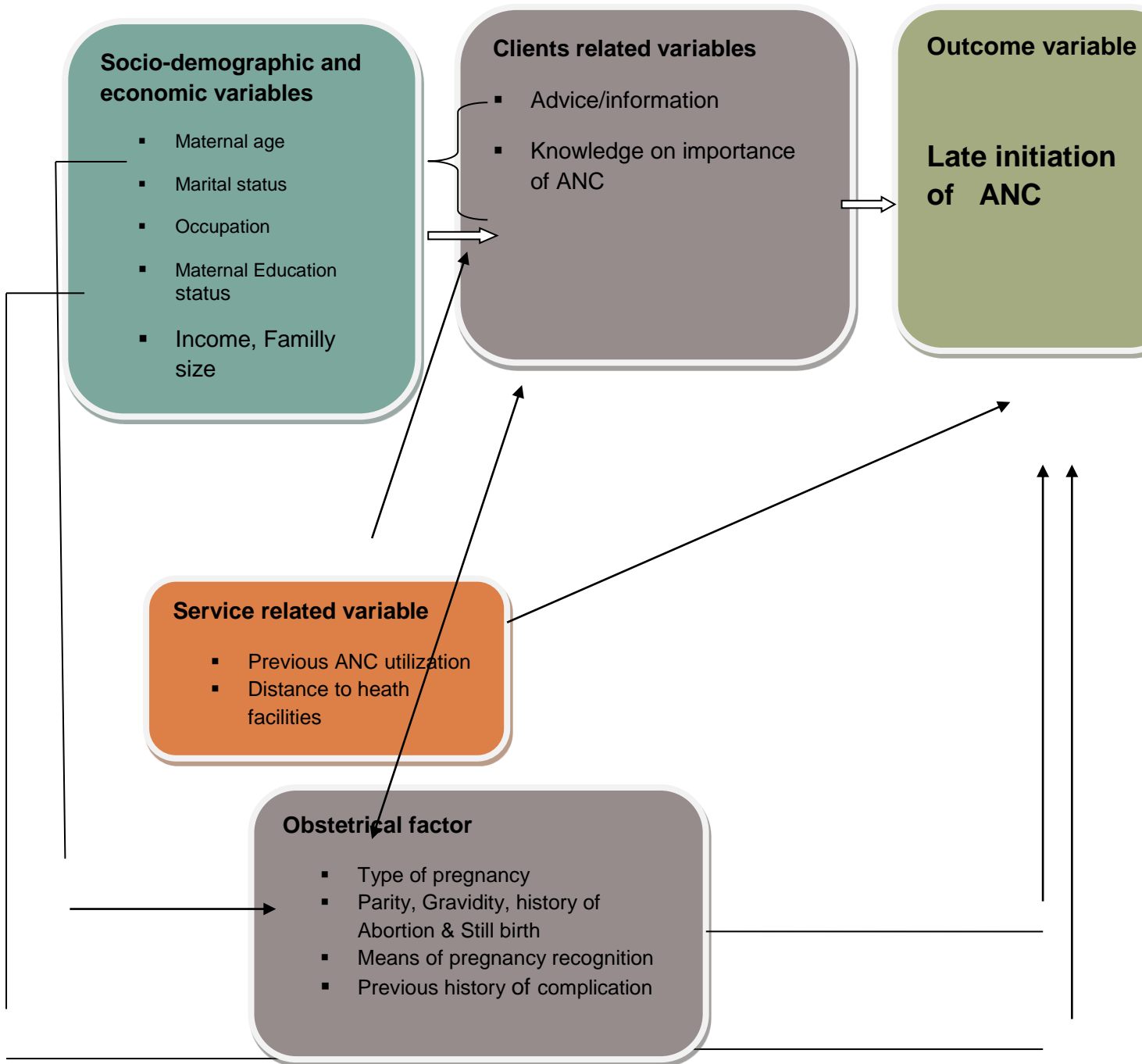


Figure 1:- Conceptual frame work adapted from literatures (11,12, 27) on late initiation of antenatal care follow up and associated factors

## **CHAPTER THREE:-OBJECTIVE**

### **3.1 General objectives**

To determine prevalence of late initiation for antenatal care follow up and its associated factors among pregnant women's attending antenatal clinic in Wolkite health center Gurage zone SNNP of Ethiopia, 2021

### **3.2. Specific objectives**

- To determine the prevalence of late initiation for antenatal care follow up among pregnant women's attending antenatal clinic in Wolkite health center Gurage zone SNNP of Ethiopia, 2021
- To identify factors associated with late initiation of antenatal care among pregnant women's attending antenatal clinic in Wokite heath center Gurage zone SNNP of Ethiopia, 2021

## **CHAPTER FOUR: METHODS AND MATERIALS**

### **4.1 Study area and Period**

The study area was in Wolkite health center in Gurage zone SNNPR Ethiopia from September to October. The study period was from September to October, 2021.

### **4.2 Study design**

Institutional based cross sectional study design was used

#### **4.3.1 Source of Population**

All pregnant women attending 1<sup>st</sup> ANC services in Wolkite health center

#### **4.3.2 Study population**

All pregnant women who were attending 1<sup>st</sup> ANC service in Wolkite health center during the study period.

### **4.4 Eligibility Criteria**

#### **4.4.1 Inclusion Criteria**

All pregnant mothers who were attending first antenatal care visit and other visit in Wolkite health center during the study period.

#### **4.4.2. Exclusion Criteria**

- Those who live less than 6 month in the town
- Those mothers who referred from other health facilities
- Those not capable of being interviewed due to serious illness were excluded

### **4.5. Sample size determination and Sampling technique**

#### **4.5.1 Sample Size Determination**

The Sample sizes was calculated based on the proportions of different variables from various literatures using Open Epi statistical software 2<sup>nd</sup> edition using single population proportion formula. By considering, 95% confidence level, 5% margin of error and the prevalence of late initiation(71.2%) from study which was done in Illubabor, south West, Ethiopia (20). For possible non response during the data collection time, 10 %was added. Thus, a total sample size 347 calculated using the formula as indicated below:

$n = (Z_{\alpha/2})^2 * p(1-p) / d^2$  Where:

n= Minimum sample size required

$Z_{\alpha/2}$ = Value of standard normal distribution (Z-statistic) at 95% CI which is 1.96

p = prevalence of late booking of ANC visits = 71.2%

d = Margin of error tolerated is (0.05)

$$n = \frac{(Z_{\alpha/2})^2 P(1-P)}{d^2} = 315$$

With the above inputs including 10% for possible non response during the data collection time, which gave a final sample size of 347

#### **4.6. Sampling procedure**

The study participants were selected by using systematic random sampling. The total sample size was proportionally allocated for one health centers on the load of pregnant women who follows ANC services in that institution, using the formula and by considering N (total number of mothers who came for first ANC follow up from July to October,2021) which was N, n (required minimum sample size was 347) and the sampling interval (k) were calculated to select the first participant by using lottery method . If an individual does not satisfy the inclusion criteria, then the next person was selected.

$$\square = \frac{\square}{\square}, 347/315 = 1.1$$

#### **4.7. Variables of the study**

##### **4.7.1. Dependent variable**

Late initiation for antenatal care follows up (Yes/No).

##### **4.7.2. Independent variable**

Demographic and Socio-economic variables :- ( Maternal age, Marital status, Educational level of the mother, Occupation, income, family size, paternal educational status)

Obstetric factors: - parity, Means of pregnancy recognition, Type of pregnancy (planned/unplanned), previous history of complication

Service related variables:- previous utilization of ANC service

Client related variables:- advice from others, Health education taken (yes/no)

#### **4.8. Operational definition**

##### Attendance of ANC

- Timely attendance of ANC - refers to initiating of antenatal care follow up before and at the 12th week of gestation(19).
- Late attendance of ANC - refers initiating of antenatal care follow up after 12<sup>th</sup> weeks of gestation(19)
- Gestational age- the age of the fetus in weeks from the last normal menstrual period of the mother.

#### **4.9. Data collection tools and procedures**

The data was collected by face to face interview administrated, structured and pre-tested questionnaire. The questionnaire consists of socio demographic factors, obstetric history, knowledge of ANC and other factors related to ANC utilization. It was prepared by reviewing different literature(12, 30), the questionnaire was first prepared in English and was translated to Amharic, and then back to English to maintain its consistency. The interview was conducted in Amharic language by group members.

#### **4.10. Data quality control**

Pretest was conducted on 5% of the sample outside the actual study area prior to the commencement of actual data collection period. Both the data collectors and supervisor were given one day training before the actual work; about the aim of study, technique of interviewing and ways of collecting the data. The data collection process would also closely supervise by One BSC midwives from Wolkite health center and the principal investigator. Throughout the course of the data collection, regular meetings was held among the data collectors, supervisors and the principal investigator. Mistakes found during edition was discussed and the necessary revision was offered to data collectors.

#### **4.11. Data processing and analysis**

After the data were checked for completeness, it was coded and entered into EPI Info version 7.1.2.0 and exported to SPSS version 20 software for analysis. During analysis, both descriptive and analytic statistical procedures was applied. Descriptive statistics like

prevalence mean and standard deviation was computed. Binary logistic regression and chi-square test was used to identify factors for late ANC follow up.

Those Variables having P-value of less than or equal to 0.25 in bivariate analysis would entered into multivariable logistic regression models. Variables with p-value of less than or equal to 0.05 was considered as statistically significant association. Moreover, in this data analysis multi co linearity would checked using variance inflation factor (VIF), Yet to say no co- linearity. Finally, the analyzed data was organized and presented using tables, graphs, charts and narrative as per necessary

#### **4.12. Ethical consideration**

Ethical clearance had been obtained from Department of public health College of Medicine and Health Sciences, University of Wolkite. Formal letter of cooperation was written for Wolkite health center and permission was obtained. Verbal informed consent had been obtained from each study subjects; each participant was informed about the objective of the study. Information was given regarding on the right to refuse or withdraw from the interview. The names of participants and identification number was included

#### **4.13. Dissemination of result**

The results of this study will be presented as an open defense to the community of Wolkite University College of Medicine and Health science department of public health. The findings were disseminate to Wolkite health center, Wolkite University library, non-governmental organizations (NGOs) working on the improvement of maternal and child health in Ethiopia. Disseminate through participation and present at scientific conferences and published in reputable international journals will be considered.

## CHAPTER 5 : RESULT

### 5.1 Socio demographic characteristics

A total of 315 participants were involved in the study with a respondent rate of 89% , of those 87(27.6%) of the pregnant women were in the age group of < 24 years followed by 187 (59.4%) in the age group of 25-35 and above 35 years old 41(13%). Among the pregnant women 170 (54%) were Gurage ethnicity group and 146 (46.3%) Muslim in religion. From all the pregnant women 314 (99.7%) were married, 102 (32.4%) are literate and 114 (64.1%) family income were less than 500 ETB.

**Table 1:-Socio demographic Characteristics among pregnant women attending ANC clinic at wolkite health center in Gurage Zone, Southern Ethiopia, 2021.**

Variables	Category	Frequency	Percent
Age	<24	87	27.6
	25-35	187	59.4
	.>35	41	13.0
Ethnicity	Amhara	54	17.1
	Oromo	52	16.5
	Gurage	170	54.0
	Other <sup>a</sup>	39	12.4
Religion	Orthodox	118	37.5
	Muslim	146	46.3
	Protestant	41	13.0
	Catholic	8	2.5
	Other <sup>b</sup>	2	0.6
Marital status	Married	314	99.7
	Other <sup>c</sup>	1	0.3
Maternal Educational status	No formal education	70	22.2
	Literate	245	77.8
Partner educational status	No formal education	45	14.3
	Literate	263	85.8
Occupation of the respondent	Governmental	42	13.3
	employee	74	23.5

	Self employee	151	47.9
	House wife	48	15.2
	Other <sup>d</sup>		
Average family income per month	5000	114	36.2
	5100-10000	167	53.0
	>10000	34	10.8
Average family outcome per month	5000	202	64.1
	5100-10000	113	35.9
	>10000	0	0
Family size	One to five	214	67.3
	Above five	101	32.1

## 5.2 Obstetric related characteristics

Two hundred forty (76.2%) of pregnant women were multigravid, 195 (61.9%) pregnant women were with no history of abortion, 199(63.2%) with one to four parity, 21(6.7 %) with history of child death of one to two, 200(63.5) had no complication during previous pregnancy.

**Table 2: Obstetric related characteristics of pregnant women attending ANC clinic at Wolkite health center in Gurage zone, southern Ethiopia, 2021**

Variables	Category	Frequency	Percent
Gravidity	Prime gravid	75	23.8
	Multi gravid	240	76.2
Parity	Nuli parity	75	23.8
	Primi to Multi parity	186	59.0
	Grand parity	55	17.5
Number of child alive	One to four	199	63.2
	>4	41	13.0
Number of child died	None	219	69.5
	One to two	21	6.7

Number of still birth	None	227	72.1
	One to two	130	4.1
			0
History of abortion	Yes	24	10.0
	No	217	90.0
Any complication during pregnancy	Yes	41	13.0
	No	200	63.5

### 5. 3 Knowledge related characteristics

On timing of ANC from 315 pregnant women perceived that ANC was important for the health of the mother 294(93.3) and fetus while 294(93.3%) pregnant women rated the importance of ANC as highly important. One hundred four (33.0%) of pregnant mothers perceived that the right time to book ANC was before three months of gestational age and 245(77.8%) perceived that 4 and above of ANC visit were necessary .

**Table 3:- knowledge related characteristics of pregnant women attending ANC clinic at wolike health center in Gurage zone, Southern Ethiopia ,2021**

Variables	Category	Frequency	Percent
How do you rate the importance of ANC for your health	Highly important	294	93.3
	Less important	11	3.5
	I don't know	10	3.2
How do you rate the importance of ANC for the fetus	Highly important	294	93.3
	Less important	10	3.2
	I don't know	11	3.5
When is the appropriate time to begin the ANC after amenorrhea	Before 12 wks	104	33.0
	After 12 wks	153	48.6
	I don't know	58	18.4
How many time do a	One to three visit	43	13.7

women need to go for ANC in health facility during pregnancy	Four and above	245	77.8
	I don't know	27	8.6

#### 5. 4 previous ANC up take

From 241 mother 199(82.6) had previous antenatal care utilization, from this 147(61.0) women were started after 12 weeks of gestational age, 122(46.5) was asked payment and 55(22.8) pay above 200ETB.

**Table 4:- Previous ANC uptake among pregnant women attending ANC clinic at Wolkite health center in Gurage Zone, Southern Ethiopia, 2021**

Variable	Category	Frequency	Percent
Had you previous ANC utilization	Yes	199	82.6
	No	42	17.4
Started time after missed period	Before 12wk	45	18.4
	After 12wk	147	61.0
	I didn't remember	7	2.9
Is there any payment do you ask for check up	Yes	112	46.5
	No	87	36.1
What is the maximum money scaled	100 to 200	58	24.5
	Above 200	55	22.8

### 5.5 Current Service Characteristics

From 315 women 246(78.1) confirm their pregnancy by missed period, 283(98.8) had planned pregnancy,174(55.2) had get advised before first attendant of the, and 200(63.5) mother start their ANC after 12 weeks of gestational age and 103(34.3) mother came from far from 3 kilometer.

Variable	Category	Frequency	Percent
knowing of being pregnant	By missed period	246	78.1
	Urine test	69	21.9
pregnancy status	Planned	283	89.8
	Unplanned	32	10.2
If unplanned, how you get pregnant	Rape	2	6.2
	Contraception failure	28	87.5
	Others	2	6.2
Had ANC information	1.yes	174	55.2
	2.no	141	44.8
Source of ANC information	health professional	85	27
	Media	16	5.1
	husband	89	28.3
	friend	50	15.9
	Other <sup>a</sup>	17	5.4
If you were attended by someone did he or she informed you when to come	Yes	134	77.0
	No	40	23.0
When did he or she	Before 12wk	97	56.4

advised to start	After 12wk	38	22.1
In the current pregnancy after months of amenorrhea when did you start ANC service	Early	115	36.5
	Late	200	63.5
Why you decide to start the follow up at this time	I perceive it is appropriate time	176	55.9
	Busy time	95	30.2
	Many constrain	11	3.5
	Other <sup>b</sup>	33	10.5
The distance from your house to health center	100 to 3000	192	61.0
	>3000	123	39.0

## 5. 6 Factors associated with booking time for ANC in wolkite Town, 2021

In the bivariate binary logistic regression analysis the following variables found to be significantly associated with late booking for ANC at p-value<0.05, maternal age, maternal education, previous experience on abortion, complication during previous pregnancy, type of pregnancy, advice from significant others and distance rom health facility.From the variables associated with late booking for ANC in the bivariate binary logistic regression; Age of the mother, previous experience on complication, type of pregnancy and distance of health

facility were statistically significant with late booking for ANC in the multivariable binary logistic regression.

**Table 6:- Multivariate logistic regression of predictors to late ANC initiation among pregnant women at Wolkite health center in Gurage Zone, Southern Ethiopia,2021.**

Variables	Category	ANC initiation		COR(95%, CI)	AOR(95%, CI)	p-value	
		Early	Late				
Age	<25	23	64	1	1	0.238	
	25-35	84	103	0.441(0.253,0.769)	2.402(0.560,10.294)		
	>35	8	33	1.482(0.598,3.674)	0.328(0.125,0.850)		0.023
Maternal Education	Literate	22	64	1	1	0.019	
	No formal education	93	136	1.944(1.119,3.377)	2.424(1.155,5.090)		
Occupation	Govern'tal	23	19	1	1	0.881	
	Self employee	24	50	2.522(1.158,5.493)	0.903(0.237,3.438)		
	House wife	55	96	2.113(1.058,4.222)	1.326(0.443,3.970)		0.614
	Other	13	35	3.259(1.352,7.858)	1.362(0.541,3.429)		0.512
Average income	Up to 5000	35	79	2.257(1.033,4.930)	0.866(0.252,2.957)	0.819	
	5100-10000	63	104	1.651(0.786,3.465)	0.669(0.213,2.096)	0.490	
	>10000	17	17	1	1		
History of abortion	Yes	11	81	1	1	0.548	
	No	13	136	1.421(0.608,3.320)	1.365(0.494,3.772)		
Complication during previous pregnancy	Yes	29	12	1	1	0.00	
	No	63	137	5.255(2.518,10.970)	6.954(2.877,16.809)		

Pregnancy is planned	Yes	10	183	1	1	
	No	0	17	0.619(0.297,1.293)	0.646(0.228,1.834)	0.412
Have you advised before come to health center	Yes	68	92	1	1	
	No	47	108	1.698(1.068,2.702)	0.509(0.263,0.985)	0.045
Distance from your house to health center	100-3000	80	112	1	1	
	>3000	35	88	1.796(1.105,2.918)	2.249(1.152,4.389)	0.018

COR: Crude odds ratio , AOR: Adjusted odds ratio , CI: Confidence interval

## CHAPTER SIX: DISCUSSION

This study reported 63.5% pregnant women were booked late. According to the WHO recommendation for developing country, more than half of the women in this study booked late (booked after the fourth month of gestational age). The proportion of those who booked after the first trimester (70.1%) was even worsen if this commonly used period was estimate and this result was similar to study conducted at Nigeria Delta (73.6%) [31]. The proportion of pregnant women who booked late was found lower compared to study done in Hadiya zone (91.3%) and Yem (87.5%) in Southern Ethiopia in 2009 and in Debre Brehan in Central Ethiopia (73.8%) in 2012 [32,33,34]. This gap might be because of differences in the study population which is the above studies included both urban and rural residents where as this study was done on urban residents only. The proportion of pregnant women who booked late was higher comparing to a study done in Addis Ababa (60%) in 2008 [35]. In this study, women aged 25 years and above had higher odds of late first ANC visit than women aged less than 25 years. This finding is supported by studies done in Gondar, Ethiopia [37], and East Wollega zone, Ethiopia [38]. The possible explanation for this could be young women may consider themselves at high risk of pregnancy complications and therefore take the needed precautions to avert any unforeseen maternal complications. Another reason could be older women may also feel more confident from previous experience and may feel starting ANC early is unnecessary. As the time of the first ANC visit varies from one respondent to another, there is also a difference in the perceived right time of the first ANC. This study revealed that women who perceived the right booking time of first ANC beyond 12 weeks of gestation had higher odds of late first ANC visit as compared to those who perceived the right booking time of first ANC at or less than 12 weeks of gestation. This finding is supported by the studies done in different parts of Ethiopia [37, 39, 40]. The possible reason for this could be that individuals seek and practice what they usually know and to the level of their perception . . . Pregnant mothers resident of big city are more likely to get an access for health service and health information than residents of small towns. Parity was a factor for late booking for ANC. These women may feel that they do not need to attend as early because they already know what to expect during pregnancy and childbirth. These women may also have difficulty of arranging childcare for other children in their home in order to attend antenatal care. Pregnant mothers who had a history on abortion were less likely to book late than who had no history of abortion and this was similar result with the study conducted at South west Nijeria[36].

The pregnant mothers might perceive that bad obstetric history makes one susceptible to bad pregnancy outcomes. They might also get focused counseling about their next pregnancy ANC visit at the time of abortion from health care workers. . Pregnant mothers with unplanned pregnancy were more likely to book late for ANC than with planned pregnancy ones. This finding was agreed with studies done in Addis Ababa, Debre-Birhan, Nigeria, Malawi and Tanzania [32,35]. Pregnant women with unplanned pregnancy may probably have less love to such pregnancy and It could also be detected later by the mother, therefore possible that they may not seek proper care for healthy development of their pregnancy and might not be interested to get information about ANC from significant others.

### **6.1 Strength and limitation of the study**

#### **Strength**

- This study is the first in the area, and it has generated new ideas for further studies

#### **Limitation**

- The governmental public health centers were preferred to conduct this study due to their accessibility to majority of the community of the town however there might be pregnant mothers who attend in private and hospitals. Therefore this study lacks to address the pregnant mothers who attend in private and hospitals because they may made socio demographic difference. And since this study is facility based study it may lacks generalization about all pregnant mothers of the town.

## **CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION**

### **7.1. Conclusion**

The study has explored the magnitude and factors associated with late booking for ANC among women of Wolkite town. The study has reported that high prevalence of late booking for ANC. The factors associated with late booking of ANC were including: extreme age of the mother, complication during pregnancy previously. unplanned pregnancy, and women that received wrong information about ANC, distance from health center. Significant number of pregnant mothers' reason out for the specific time for first ANC visit as time constraint, many constrain, fear of early publicity of pregnancy, fear of too many follows up and others. These results reflect the presence of inadequate knowledge in the pregnant women about the right knowledge of modern ANC services.

### **7.2 Recommendation**

From these results we recommend that community mobilization should be strengthened at all levels to address the cultural barriers and low awareness of FANC. Mobilization of community should include groups of pregnant women to disseminate the information easily, specifically on the correct time to book ANC and dangers on late booking for ANC in time. This would empower them with the right knowledge on ANC services. There should be a continuum of ANC from the community to health facilities to offer tremendous opportunities to pregnant women. There must be effective collaboration of ANC providers at all levels (midwives, urban health professionals and community leaders) because effective use of ANC care services by pregnant women requires efforts from the health professionals and community members.



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## 8. ANNEXES

### 8.1. Annex I: Definition of terms

Antenatal care: The care given to a woman during her pregnancy by a health care professional

Trimester: - prenatal division of pregnancy duration

First trimester:-gestational age before 12 weeks

Second trimester:-gestational age between 13-27weeks

Third trimester:-gestational age between beyond 28 weeks

Parity: Number of birth

Gravidity: number of pregnancy

Nullipara:-women have no history of birth

Primipara:-a woman who has been delivered only once of a fetus

Primigravida:-- women having first pregnancy

Multigravida: -- a women having more than one pregnancy

Cohabitation:--Living together before marriage

## 8.2. Annex II. Information Sheet

This information sheet is prepared to explain the research project that you are asked to join by a group of research investigators. The main aim of this research Project is to assess late initiation for antenatal care follow up and its associated factors among pregnant women attending antenatal clinic at wolkite town, health center. Title of the Research Project: - To determine late initiation for antenatal care follow up and its associated factors among pregnant women attending antenatal clinic at Wolkite health center in Gurage zone SSNPR Ethiopia 2021. Name of Principal Investigator: Mekdes Tegegn

Hakim Bedru

Siraj Mudin

Name of the Organization: Wolkite university, College of Medicine and Health Sciences, Department of public health.

Name of the Sponsor: Wolkite University

Information Sheet is prepared for pregnant mothers who came for their first ANC follow at health center to participate in this research project.

Purpose of the Research Project

The aim of this study is to determine late initiation for antenatal care follow up and its associated factors among pregnant women attending antenatal clinic at and Wolkite health centre in Gurage zone SSNPR Ethiopia, 2021

Assessing prevalence and factors for late initiation of antenatal care follow up is very important to reduce the delays that hinder from taking timely care. The results of this study will be used to design appropriate intervention programs to address the Procedure

Wolkite University was write official permission letter to Wolkite health center. Verbal consent was gained from the study participants. You are selected to be one of the study participants. If you are willing to take part in this study and we kindly invite you to take part in our project. If you are willing to participate, we are so happy and we need you to clearly understand the aim of

this study and show your agreement .Finally you are kindly requested to give your response honestly.

#### Risk and/or Discomfort:

There is no any risk or discomfort that you was face by participating in this research project except dedication of time for responding . Every piece of information was kept confidentially.

#### Benefits

Your participation is definitely important to identify factors for late initiation of ANC follow up ; and to design appropriate. the findings of this study are used to implement the intervention and reveal out the problem related to late initiation of ANC follow up; and provides information on factors affecting its implementation. There is no risk or direct benefit in participating in this research project.

#### Confidentiality

The information collected from you was kept confidential and stored in a file,

Without your name by assigning a code number to it . And hence no report of the

Study ever identifies you

#### Right to Refusal or Withdraw

You have the full right to refuse from participating in this research.

#### Person to contact

Name:Mekdes Tegegn

Tel: +251923607645

E-Mail: [mekdestegegn2@gmail.com](mailto:mekdestegegn2@gmail.com)

### 8.3. Annex III: English version Consent form

Good morning, Good afternoon. My name is \_\_\_\_\_ I am a public health officer working in this hospital. I am here to gather information for an investigator from Wolkite University who is studying late initiation of ANC follow up and its associated factors among mothers who attending ANC clinic at Wolkite health center for partial fulfillment of bachelor of Science in public health. You will be selected for interview by means of chance selection process. So I would like to ask you few questions which will help meet the main aim of the study and Your participation in this study is very important. So I kindly request you to participate in genuinely answering the interview. I also like to assure that you have full right to refuse or withdraw at any time during the interview and you can refuse to answer any question I ask. The interview will last approximately 20 min. As your name, card number or other private information will not be recorded. If you have any question about this study, you can contact the investigator with the mobile phone number: 0923607645.

May I proceed with the questions? YES  NO

Questionnaire on assessment of late initiation for antenatal care follow up and its associated factors among pregnant women attending antenatal clinic at Attat Karl hospital and Wolkite health center Gurage zone Ethiopia

### 8.4. Annex IV. Questionnaire (English Version)

Questionnaire No \_\_\_\_\_ health institution \_\_\_\_\_ Date: \_\_\_\_\_

No	Questioners	Response	Code
Socio demographic and economic variable			
1	Age	1.<25 2. 25-35	

		3. >35	
2	What is your Ethnicity	1.Amhara 2.Oromo 3.Gurage 4.Others	
3	What is your Religion	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others	
4	What is your Marital status	1.Married 2. Other	
5	Maternal educational level	1.No formal education 2. Literate	
6	Occupation	1.Government employed 2. self employed 3. House wife 4.Others	
7.	Average family Income per month	5000 5100-10000 >10000	
8.	Family size	One to five	

		Above five	
9	paternal education status	1. Not formal education 2. Primary [1-8] 3. Secondary [9-10] and certificate 4. College diploma and above	
Obstetric history			
10.	Gravida	1. prime gravid 2. multi gravid	
11.	Para	1. Number of children alive _____ 2. Number of children died _____ 3. Number of still birth _____	
12.	History of abortion	1. yes 2. no	
13.	previous complication during pregnancy	1. yes 2. No	
Knowledge			
14.	How do you rate the Importance of ANC for your health?	1. Highly important 2. Medium 3. Less 4. I don't know	
16.	How do you rate the	1. Highly important	

	Importance of ANC for the fetus?	2. Medium 3. Less 4.I don't know	
17.	When is appropriate time to begin the ANC after amenorrhea?	1.Befor 12wks 2. After 12wks 3.I don't know	
18.	How many time do a women need to go for ANC in a health facility during pregnancy	1. One Visit 2. Two to Three Visits 3. Four and More than four 4. I don't know	
Past history of service utilization			
19	Had history of ANC utilization on your pregnancy preceding the current?	1.Yes 2.No	
20	If yes when did you started on your recent previous pregnancy follow up after missed period?	1.Befor 12week 2.After 12 week 3.I didn't remember	
21	Is there any payment you were asked for checkup?	1. Yes 2. No	

22	If you paid for any service charge, what is the maximum money you paid for a visit?	..... ETB	
History of current pregnancy			
23	How do you know your current pregnancy?	By Missed period	
		By urine test	
		Other [specify].....	
24	Is this pregnancy planned?	1. Yes 2. No	
25	If your pregnancy were unplanned or unwanted, did you want to undertake abortion?	1. Yes 2. No	
History of current ANC			
26	Before your first attendance of the ANC, was there any one who advised you to come?	1. Yes 2. No	
27	If yes, from whom you get advice?	1. Community health work (HEW) 2. Media (radio/TV) 3. Husband 4. Family member or Friend 5. others	

28	If you were advised to attend ANC by someone, Did he/she informed you when to start?	1. Yes 2. No	
29	If yes, When did he /she advise you to start?	1. Befor and at 12 weeks of amenorrhea 2. After 12weeks of amenorrhea	
30	In the present pregnancy, when did you start the follow up?	1. Before and at 12 weeks of amenorrhea 2. After 12weeks of amenorrhea	

32	Why you decide to start [begin] the follow up at this time?	1.I perceive it is appropriate time 2. From my Experience 3. Busy time 4. money constraints 5. Because of unplanned pregnancy 6.Others[specify]_____	
33	The maximum distance from your house to health center	1. 100 to 3000 M 2. far from 3000 M	



