



WOLKITE UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCE

DEPARTMENT OF NURSING

Time of folic acid initiation among pregnant women attending antenatal care at public health center in wolkite, southern, Ethiopia.

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A RESEARCH PROPOSAL SUBMITTED TO WOLKITE UNIVERSIT, COLLEGE OF MEDICINE AND HEALTH SCIENCE DEPARTMENT OF NURSING, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE BECHOLAR DEGREE IN NURSING PROGRAM

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ACRONYMS AND ABBREVIATIONS

ANC	Antenatal care
FA	folic acid
IFA	Iron and folic acid
NTD	Neural Tube Defect
WHO	World Health Organization
SACN	Scientific Advisory Committee on Nutrition
ICBD	International Clearinghouse For Birth Defect
CDC.	Centers For Disease Control

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Abstract

Folic acid is a B complex vitamin that essential to a healthy pregnancy. It is very important for a pregnant woman to protect against neural tube Defect. WHO recommended that a pregnant women should have start taking folic acid 0.4 mg daily before conception and up to 12 week of gestational age.

Objective: *To identify the time of folic acid initiation among pregnant women attending Antenatal care (ANC) at a public health center in wolkite Ethiopia*

Methods: *Institutional based cross-sectional study design will be used. a simple random sampling used to select 193 respondents. The data was collected by interview using a structured questionnaire.*

Result: *in this study, the prevalence of pregnant women taking folic acid at periconcptional and early pregnancy in wolkite, Ethiopia is 2.95%. It is evidents that pregnant women Attending ANC at wolkite public health center 68.9% we're started folic acid intake In late pregnancy*

Conclusion: *folic acid initiation the most important nutrients to forestall serious birth defect , especially neural tube defect.*

Recommendation: *wolkite city administration and health bureau should have to educate mother's on importance and time to initiation folic acid.*

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the study

Folic acid is also called foliate in its natural form, is a form of water soluble vitamin B complex that is essential to a healthy pregnancy (1). It is found in green vegetables like broccoli, spinach, lettuce and also found in some fruits like banana, orange (2). It has an important role for growth and cell division, as well as synthesis of fetal cell DNA and RNA (3).

Studies show that provision of folic acid initiation to a woman before and during early pregnancy is a gold standard measure to protect neural tube defect and other congenital anomalies (4). World Health Organization and Ethiopia government recommended initiating the daily iron and folic acid supplementation during pregnancy as early as possible as a part of antenatal care program for positive pregnancy outcome (5).

Women mostly do not reach the required dietary consumption in pregnancy even though foliate plays an essential task in biological functions (6). Pregnant women are at high risk of iron and folic acid deficiency due to increased nutrient requirements during pregnancy (7). A woman who had no previous pregnancy with neural tube defect can reduce the risk of having a fetus with neural tube defect up to 62% by taking 0.4mg folic acid supplement during periconception period (8,9). In addition to this, women who had previous pregnancy with neural tube defect can also reduce the risk of recurrence up to 72% by taking 0.4mg folic acid a day during protective period (10).

According to World Health Organization (WHO) and national guideline recommendation all pregnant women should receive a daily dose of 400 microgram folic acid for 6 months and additional 3 months postnatal care (11-12). Although NTDs have multiple etiologies, several studies in 1990

demonstrated that Periconceptional dietary foliate supplementation of folic acid and /or supplemental multivitamins containing folic acid help prevent neural tube defect(13).when taken before conception adequate use of folic acid reduce the number incidence of neural tube defect ,by 50-70% to rate of approximately 6 to 10000 pregnancies(14).

Neural tube defects are serious birth defects that happen very early in pregnancy during the development of the fetus. (15). as different reports show women who aware of the need for folic acid we're almost 40 times more likely to take it then women who did not know of benefits (16). In the UK an update of the scientific advisory committee on nutrition (SACN) in 2017, also recommended 400microgram of folic acid supplementation until the 12 week of pregnancy and adds that those women with a history of previous NTD affected pregnancy are advised to increase consumption to 5mg/d(17). generally all women should have to start initiated to folic acid as much as possible before conception and continue up to twelve week of gestational age. a previous study reported show that women who started supplementation prior to conception were more likely to achieve optimal foliate level necessary to prevent neural tube defect ,than women who started supplementation after conception (18).

1.2. Statement of the Problem

Folic acid supplementation after the first month of pregnancy will not prevent neural tube defects (19). Since NTD occur during days 22-28 of fetal development before most women even know that they are pregnant, initiating folic acid supplementation after the first month of pregnancy is too late to prevent neural tube defect. neural tube defect are severe abnormalities of central nervous system (CNS) that develop in embryos during the first few weeks of pregnancy and associated with miscarriage, stillbirth and neonatal mortalities(20).According to international Clearinghouse (IC) for birth defects surveillance and research the prevalence rates of neural tube defect including spinal bifida, anencephaly and encephalocele between 2007 and 2011 were 5.14 per 10000 live births and still births in Canada,6.85 in Japan and 7.64 in the US state of Texas(21).

Neural tube defect is the major cause of death and lifelong disability globally (22). According to the study, worldwide neural tube defect have been reported to occur at a rate of 400,000 births per year(22-23). in Oman, national data retrieved from hospital record showed the incidence of

neural tube defect to be 12.5 per 10000(26). rates in Africa are estimated to be between 1 and 3per 1000 births, with studies reporting between 1.15 and 1.6 per 1000 birth for Ghana, Western Africa country (24-25). In Ethiopia, That hydrocephalus (35.5%) and neural tube defects (27.5%) are one of the main reasons for admission to clinics for surgeries among youngsters (27).

Globally, 70% women(28)and 41% in Nepal (29) didn't took iron and folic acid supplement during pregnancy . In Ethiopia, nationally only 5% of pregnant women took iron-folic acid supplementation for greater 90 days ,but 58% did not take any iron-folic acid tablets during their most recent pregnancy (30).

Folic acid has been shown to reduce effectively the risk of neural tube defects. although not all cases of neural tube defects can be prevented by increasing the intake of folic acid due to in appropriate time of folic acid consumption(31). In many health center in ethiopia no evidences that show on when pregnant women are initiates to folic acid. knowing time of initiation of folic acid can reduce risk of NTDs. To prevent the of NTDs appropriate consumption of folic acid before conception and during early pregnancy could be prevent 50 to 70% of cases(32). So to prevent the risk of this neonatal neural tube defect identifying time when pregnant womens are starting folic acid intake and supplementation of daily 400microgram of folic acid before pregnancy is very important to prevent the occurrence of neural tube defect.

there no evidences that shows study conducted on time of folic acid initiation in wolkite health center.Even no study has been conducted in our study setting so far, Therefore we conducted this study to identifying the time of folic acid initiation among pregnants women attending antenatal care at public health center in wolkite

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

Maternal nutritional status during pregnancy, is an important determinant factor for child health, developmental and well being. (33,34) The dietary status of women previously and during pregnancy assumes a critical function in fetal development and advancement. Poor nourishing status in a woman in the period before conception and in early pregnancy (as long as 12 weeks incubation), may build the danger for unfriendly pregnancy results. This Periconceptual period is hence viewed as a significant time for intercessions that advance maternal wellbeing and subsequently improve the probability of positive pregnancy results (35). Daily oral iron and folic acid supplementation is recommended as part of antenatal care (ANC) to reduce the risk of abnormal fetal birth(WHO, 2012)

The main target of folic acid intake before and during pregnancy is its protection against neural tube defects. However, the question is when is the best time to start taking it (36).In 1992,The U.S. General Health Service suggested that all women who could become pregnant get 0.4 mg of folic acid every day to forestall complications to the newborn.

2.2. Time of folic acid initiation

Study show that the daily intake of 0.4mg-0.5mg of folic acid is recommended during the peri-conceptual period, (37) which encompasses the interval from 1 month before conception to 3 months after conception. Hence folic acid supplementation in women in the child bearing age, especially those with history of previous pregnancy complicated by neural tube defect is recommended in the peri-conceptual period to prevent these disorders. (38) the centers for disease control (CDC) recommend that a women trying to conceive begins a folate supplement at least a month before conception, this is because folate plays an incredibly important role during early development. (39)

According to result from prospective cohort study done in northern China among 30,801 pregnant women presenting for antenatal care 59% women took folic acid during the periconceptual period and 41% had not taken folic acid at all.(40). In Nepal, 58% of mothers

and in Pakistan 31% of mothers started folic acid at or before 5th month of pregnancy (41). In a prospective observational study of women presenting for antenatal care in Coombe Women and Infants University Hospital, 24.7% took it for >12 weeks preconception ally. While 96.1% reported that, they took FA after they became pregnant (42). In Another study in Anhui, china 68% of pregnant women reported taking folic acid supplementation periconceptionally and 32% and 65. 2% had taken it before or during early pregnancy, respectively (43). in Africa, study done at a regional referral hospital in Kenya among 381 pregnant women attending antenatal care only 19.3% of the women who received the folic acid received the supplement within the first trimester (44). Nigeria shows that Out of 543 pregnant women surveyed, just 7.4% (26/351) reliably took the nutrient throughout the defensive periconceptional time. (45) In Ethiopia, only 1.92% of women took the supplement during the early period of pregnancy against neural tube defects (46).

1.3. Significance of the study

This study will provide information regarding which time is useful for the initiation of folic acid and contribute to the understanding of the role of prenatal nutritional supplements on a child. These to provide updated information on the time of folic acid initiation, which plays a significant role in the prevention of neural tube defects.

In addition to this, it aims to identify time of folic acid initiation and to give recommendations for health professional and concerned bodies.

The findings were distributed to healthcare facilities. The results of this study can motivate medical care professionals to aid in the instruction and counseling of women about the proper time and use of folic acid supplementation. Finally, the finding of this study will be used as a reference for further study.

CHAPTER THREE

3. OBJECTIVE

3.1. General objective

- To identify the time of folic acid initiation among pregnant women attending ANC in the public health center in wolkite, Ethiopia 2013.

3.2. Specific objectives

- To identify the time of folic acid initiation among pregnant women attending ANC in wolkite public health center from July 29- August 12,2021G.C.

CHAPTER FOUR

4. MATERIALS AND METHODS

4.1. Study area and period

The study is conducted in public health centers of Wolkite. Wolkite is a town and separate woreda in south-western Ethiopia and found at 158km distance from Addis Ababa. The administrative center of the Amhara region of the southern nation nationalities and people's region (SNNPR), this town has a latitude and longitude of 8°17'N, 37°47'E and an elevation between 1910 and 1935 meters above sea level. It's surrounded by Kabena woreda and it was part of former Goro woreda. Wolkite has two public health centers. The first health center is found around Gabriel Sefer which was established in 1983 E.C and 140 women per week follow antenatal care. The second health center is found at Mariam Sefer and established in 2007 E.C and 40 women per week follow antenatal care.

The study period was conducted from July to August 2021 G.C

4.2. Study design

Institutional based cross-sectional study was conducted to identify the time of folic acid initiation among pregnant women attending ANC in Wolkite public health center, Ethiopia.

4.3. Population

4.3.1. Source population

- All pregnant women who are on follow up in ANC in the public health center of Wolkite, Ethiopia.

4.3.2. Study population

- All sampled pregnant women who are on follow up in ANC in the selected public health center of wolkite, Ethiopia.

4.4. Eligibility criteria

4.4.1. Inclusion criteria

- All pregnant women who are in ANC follow up in selected public health centers

4.4.2. Exclusion criteria

- ✓ Pregnant women not available during the study period
- ✓ Pregnant women who are in serious illness and difficult to participate
- ✓ Pregnant women who do not volunteer to participate

4.5. Sample size determination

- The Determination Sample size will be determined by the method of a single population proportion recipe. Therefore, the sample size will be determined by the formula as follows;

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

d²

Women took folic acid at least once at first trimester among pregnant women in woliyatta, southern ethiopia is 13.9

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

d²

- With assumption of desired precision (d) = 0.05
- P = 0.139
- $n = \frac{(1.96)^2(0.139)(1-0.139)}{(0.05)^2} = 184$
- Adding 5% for non-response rate during the actual study then the sample size became
 $= 5 * 184 / 100 = 9.2$
 $9.2 + 184 = 193$

4.6. Sampling procedure

The simple sampling method was used as a sampling method

4.7. Study variable

- ✓ Time of folic acid initiation
- ✓ knowledge of folic acid use
- ✓ Educational status
- ✓ Timing of first antenatal care

4.8. Conceptual and Operational definition

- ✓ **Antenatal care:** the care provided by skilled health-care professionals to pregnant women and adolescent girls to ensure the best health conditions for both mother and baby during pregnancy.
- ✓ **Folic acid:** According to scholars writes on "evaluation of nutrition and mineral-vitamin use during pregnancy" Folic acid is a synthetic B-vitamin found in vitamin supplements (1).
- ✓ **Neural tube defect:** According to our study NTDs is a group of birth defects involving the spine or brain (20).
- ✓ **Time of folic acid initiation:** a time when folic acid taking start.
- ✓ **Early initiation:** folic acid initiation before pregnancy or within one month of pregnancy. (35).
- **Late initiation:** folic acid initiation after one month (19).

4.9. Data collection method and procedures

After completing the study materials and obtaining formal written papers from wolkite University and wolkite health office to conduct the research, data was collected by a graduating class nursing student after permission obtained from the selected public health center under the supervision of the principal investigator using data collection format. In conducting this study, face-to-face interview technique, a structured questionnaire was used to collect the relevant data. The data collection tool was adapted from previously conducted research. It contains closed and open-ended questionnaire. The client was interviewed after getting the service and just before the client left the respective health institution. During the data collection process of each questionnaire was checked daily by the principal investigators for its completeness and accuracy of the information collected.

4.10. Data quality control

The questionnaires develop based on the study objective. Training was given for data collectors towards the objective of the study and data collection processes. There was be a pre-test to check its appropriateness, Accuracy, Clarity, and consistency. The research team was check the data daily for completeness during data collection time and Investigators was checked the filled questionnaires for consistency.

4.11. Data analysis

The collected data was be checked. A p-value of 0.05 or less will consider statistically significant. The data will cleaned before planning for analysis. Finally, the data will analyzed, interpreted.

4.12. Pre-test

Pre-testing was conducted on 5% respondents of emdiber health center and these respondents did not participate again in the actual study. The purpose of this pilot study is to determine whether the proposed study is feasible, develop or refine the research instrument

4.13. Ethical consideration

Ethical clearance was obtained from the Research Ethics Committee of wolkite University College of medicine and health Science. In addition, the letter was prepared and given to the selected public health center to get permission to conduct the study. Informed consent was taken

from the participant and the privacy of an individual’s information provided was strictly preserved. It was used only for study purposes. It will not disclosed to anyone. A code number was used to identify the participant; therefore, writing their name will not needed.

4.14. Dissemination plan

The hard copy of the finding was sent to wolkite University College of medicine and health science department of nursing and to other stakeholders who can bring change based on results and will be presented to wolkite University for partial fulfillment of the degree of Bachelor of Science. The result of this study was submitted to our instructors, the respective woreda health office, and any concerned body.

Socio demographic characteristics of variables with categories		Frequency	Percentage (%)
Age in years	19-27	63	32.6
	28-37	103	53.4
	38-46	27	14

5. RESULT

5.1. Socio- demographic characteristic of the study subjects

A number of 193 pregnant women attending ANC in wolkite public health center were interviewed from July 2021 to August 2021. Among 193, pregnant women 32.6% aged between 19-27. 53.4% were aged between 28- 37 and 14.5% were aged 38 and above .The minimum age was 19 and the maximum age was 42. Out of 193 respondents 58(30%) were an illiterate, 54(28%) were follow primary education, 50(26%) were secondary education, 31(16%) we're tertiary education.

Table 1: Socio-demographic characteristics of the participants of pregnant women at public health center 2021 (n=193)

Religion	Orthodox	82	42.5
	Muslim	80	41.45
	Protestant	16	8.3
	Catholic	12	6.2
	Others	3	1.55
Marital Status	Married	189	97.9
	Unmarried	4	2
Educational level	Illiterate	58	30
	Primary Education	54	28
	Secondary education	50	26
	Tertiary education	31	16
Occupation	Unemployed	107	55.4
	Employed	86	44.6
Monthly income	<2500	133	68.9
	>2500	60	31
Ethnicity	Gurage	60	31
	Oromo	48	24.9
	Amhara	38	19.7
	Kabena	37	19.2
	Others	10	5.2
Residence	Urban	118	61
	Rural	75	39

5.2. Obstetric history of the respondent

About 23{11.9%} the women were prim gravid while 118{61.1%} had 1-3 child, 48{24.9%} had 4-6 child and 4(2%) had 7-9 children. Among them 4.81% had a history of unsuccessful

pregnancy {NTD} in a lifetime. Out of 193 respondents 11(5.7) we're had history of NTD, and the remaining 181(94.3) hadn't history of NTD.

The current pregnancy was planned by 178{92.2% the month of first ANC ranges from 1 month to nine month. 5[2.6%} of the women made their first ANC visit in the first 1 month, 132{68.4%} between 2 and 5 months, 56{29%} between 6 and 9 month.

Table 2: folic acid usage among pregnant women at public health center 2021(n=193)

Variables		Frequency	Percentage
Number of Pregnancy	Prim gravida	23	11.9
	1-3	118	61.1
	4-6	48	24.9
History of NTD	Yes	11	5.7
	No	182	94.3
Pregnancy	Planned	178	92.2
	Unplanned	15	7.8
Time of first ANC visit	Pre-conception – 1 month	26	15.6
	2-5	125	75.3
	6-9	11	6.62

5.3.Awaraness and Knowledge of folic acid of the respondent

Among the 193, 98(50.8%) heard about folic acid from health professional, 9(4.7%) from other source, 12(6.2%) from family, 14(7.25%) from books, 1(0.5%) from media and the remaining 59(30.6%) didn't hear. Also 120(62.2%) know that folic acid prevent NTD and 73(37.8) did not know Knowledge of folic acid in prevention of NTD.

Among the population of pregnant women 103(53.4%) of them understand folic acid intake is for prevention of NTD, 39(20.2%) them have no knowledge, 44(22.8%) of them say for high blood pressure and 7(3.6%) say for strong bone.

In the time of initiation 107(55.5%) says it is best to take as early as possible, 63(32.6%) says at the end of pregnancy, 2(1%) says after delivery and while 21(10.9%) had no awareness.

Table 3. Knowledge of folic acid usage among pregnant women at public health center 2021 (n=193)

Variables		Frequency	Percentage
Source of Information	Magazine/books	14	7.2
	Medical experts	98	50.8
	Family friends	12	6.2
	Other	9	4.7
	Media	1	0.5
Anomalies	Yes	103	53.4
	No	90	46.6
Knowledge of prescription	Strengthens bone	7	3.6
	Prevents anomalies	103	53.4
	Prevents Hypertension	44	22.8
	Unaware	39	20.2
Knowledge of initiation	Pre-conception and early pregnancy	107	55.5
	late pregnancy	63	32.6
	after delivery	2	1
	unaware	21	10.9

5.4. Folic acid attitude of respondent

Among 193 of respondents, 183(94.8%) were interesting to take folic acid during pregnancy while, 10(5.2) have no interest. Also 50(25.9%) we're unaware to if folic acid leads to abortion, 67(34.7%) was disagree, 76(39.4%) was very disagree. Among the respondents, 60(31%) disagree with folic acid results in big fetus, 61(31.6%) very disagree, 72(37.2%) of them were neutral. Among the 193 respondents 97(39.50.25%) very disagree with folic acid affect the mother, 64(33.2%) disagree, while 32(16.3%) neutral. Among 193 respondents 3(1.55%) were agree folic acid affect the fetus, 37(19.2%) neutral, 73(37.8%) were disagree and the remaining 80(41.45%) very disagree.

Table 4: folic acid attitude of pregnant women at public health center 2021(n=193)

Variables		Frequency	Percentage
Interesting in folic acid during pregnancy	Yes	183	94.8
	No	10	5.2
Folic acid leads abortion	Very agree	0	0
	Agree	0	0
	Neutral	50	25.9
	Disagree	67	34.7
	Very disagree	76	39.4
Folic acid results in Big fetus	Very agree	0	0
	Agree	0	0
	Neutral	72	37.3
	Disagree	60	31
	Very disagree	61	31.6
Folic acid Affect mother	Very agree	0	0

	Agree	0	0
	Neutral	32	16.6
	Disagree	64	33.2
	Very disagree	97	50.25
Folic acid Affect fetus	Very agree	0	0
	Agree	3	1.55
	Neutral	37	19.2
	Disagree	73	37.8
	Very disagree	80	41.45

5. 5. Folic acid usage of the respondent

Among 193 pregnant women 169{87.6%} took folic acid daily and 24{12.4%} never took the supplement. Among women who took the supplement during the current pregnancy 5{2.95%} took before and within month of pregnancy and 116{68.6%} started between 2-5 month, The remaining 48{28.4%} started taking the supplement between 6-9 month. Of those women who didn't took folic acid 17{70.8%} did not get the supplement,5 {20.8%} do not want and 2{8.3%} exhibited side effect.

Table 5: folic acid usage among pregnant women at public health center 2021 (n=193)

Variables		Frequency	Percentage
Folic Acid Intake	Yes	169	87.6
	No	24	12.4
Period Of intake	Up to 1 month	5	2.95

	2-5 month	116	68.6
	6-9 month	48	28.4
Out turn reasons	Not administered	17	70.8
	Not needed	5	20.8
	Side effects	2	8.3

6. Discussion

Early initiation of folic acid among pregnant women is crucial in determining a proper health outcome of a pregnancy as it aids in preventing birth anomalies, NTD and Enhances the health of the mother. The Centers for Disease Control (CDC) recommends that a woman trying to conceive begins a folate supplement at least a month before conception this is because folate plays an incredibly important role during early development (39).

In this study the data indicated that The prevalence of folic usage at early pregnancy in wolkite, Ethiopia was found to be 2.95%. This finding is lower than with the study conducted at regional referral hospital in kenya 19.3% (44). The finding is also lower than the studies conducted in Nigeria was 7.4%(26).

The finding is lower than the studies conducted in Anhui, china where 68% of pregnant women reported taking folic acid supplementation peri- conceptionally and 32% and 65.2% had taken it before or during early pregnancy, respectively (43).

In this study Pregnant women who have knowledge about folic acid less likely to take folic acid at the recommended time, which is different with the finding in the study conducted in Nigeria in which 64.6% of pregnant women are accounted for that they know about (FA) as a nutrient

enhancement. Notwithstanding, just 7.4% reliably took the nutrient during the peri-conceptional period (44).

7. Strength and Limitations of the study

Strengthen

It was pre tested to check its appropriateness, accuracy, Clarity and consistency. This may increase the quality of the finding of the research.

Group members committed to work together

Limitation

The mothers were interviewed within the health centers, and they may give responses favoring the care providers resulting in social desirability bias.

8. Conclusion

The prevalence of folic usage at early pregnancy in wolkite, Ethiopia was found to be 2.95%.

Despite the fact that previously established inclination, folic acid admission is basic measures to forestall numerous serious birth defects, especially NTDs; in Ethiopia it is

unnoticed by strategy creators, less recommended at the defensive period by medical care suppliers, underused by pregnant women

9. Recommendations

Wolkite City Administration Health Bureau and facility managers,

to implement policies and strategies that develops a community based approach on educating mothers about folic acid supplementation and its time of initiation

Health professional and policy maker

Medical experts and health service managers have to create an environment suitable for mothers to discuss their concerns regarding the use of folic acid and FA supplementation should be fortified among ladies who are or wanting to get pregnant.

Preparing medical services suppliers on NTD and other birth imperfection counteraction components, giving training to the entire network even from the get-go in secondary school level utilizing media and different techniques.

The other most important intervention that could be done by policy makers and other stakeholders is starting preconception care for women who plan to become pregnant. This action might improve folic acid usage for preventing NTDs and other birth defect and early ANC registration.

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11. Annexes

Annex I: English Version of Information and consent form.

Dear participant, Good Morning/Afternoon

We are here to collect data for research purposes that will be conducted to complete a research project for nursing degree in wolkite University, College of medicine and health science, Department of Nursing.

2	Marital status	A. Single B. Married
3	Religion	A. Orthodox B. Muslim C. Catholic D. Protestant E. Others
4	Educational Level	A. Illiterate B. Primary school C. Secondary school D. Tertiary and Above
5	Occupation	A. Employed B. Unemployed
6	Residence	A. Urban B. Rural
7	Ethnicity	A. Gurage B. Oromo C. Amhara D. Kabena E. Others
8	Monthly income	A. <2500 B. >2500
Section II: Obstetrics Characteristic		
1	The number of children you have	A. I don't have B. 1-3 C. 4-6 D. 7-9
2	Do you have previous history of birth defect?	A. Yes B. No
3	Do you plan to get pregnant?	A. Yes B. No
4	Frequencies of ANC visits	A. 1 B. 2 C. 3 D. 4
5	The first visit to antenatal care?In week.
6	Current gestational age?
Section III : folic acid awaranness and knowledge		
1	Have ever heard or read that taking folate can forestall some birth	A. Yes B. No

	anomalies	
2	If yes , where you heard about folic acid from any of the following?	A. Books, magazine or newspaper B. Health professionals C. From Media(TV or Radio) D. Family or friends E. Others
3	Do you know the benefits of using folic acid?	A. Yes B, no
4	Some health experts recommend taking folic acid for which one of the following reasons?	A.To make strong bones B. To prevent birth defect C. To prevent high blood pressure
5	Why folic acid important for fetus	A,for production of red blood cell B,to prevent nerve system malformation C,to reduce mal formation and pre mature birth
6	Which time is considered as the best time to take folic acid?	A.Before conception and in early pregnancy B. In late pregnancy C. After delivery
	Section IV: attitude	
1	Do you interesting to take folic acid	A, yes B, no

	during pregnancy?	
2	Do you think that folic acid leads to abortion?	A,very agree B,agree C, neutral D, dis agree E, very dis agree
3	Do you think that taking folic acid results in a big fetus?	A,very agree B,agree C, neutral D, dis agree E, very dis agree
4	Do you think that taking folic acid affects the mother?	A,very agree B,agree C, neutral D, dis agree E, very dis agree
5	Do you think taking folic acid harms the fetus?	A,very agree B,agree C, neutral D, dis agree E, very dis agree
Section v: time folic acid initiation		
1	Have you been taking a daily folic acid supplement?	A.Yes B. No
2	If yes; when did you begin taking folic acid supplement?	With in,,,,,,,,, day/week/month after conception
3	If no why the reason?	

