PREVALENCE AND ASSOCIATED FACTORS OF PREECLAMPSIA AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE IN AGENA PRIMARY HOSPITAL AGENA TOWN,EZHA WOREDA, GURAGHE ZONE, CENTRAL ETHIOPIA,2024

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ACRONYMS AND ABBREVATIONS

ANC: Ante Natal Care

AOR: Adjusted odds ratio

BMI: Body mass index

CI: Confidence interval

COR: Crude odds ratio

DM: Diabetes Mellitus

EDHS: Ethiopia demographic and health survey

EMONC: Emergency obstetric and neonatal care

HDP: Hypertensive disorder of pregnancy

IUFD: Intrauterine Fetal Death

LNMP: Last Normal Menustal Period

mmHg: Milimeter Mercury

WHO: World Health organization

ABSTRACT

Background:

Preeclampsia is a rapidly progressive condition characterized by elevated blood pressure and protein in the urine. It is the leading causes of maternal and perinatal morbidity and mortality worldwide and accounts for up to 12% of all yearly worldwide maternal deaths and it is responsible for 25% of fetal and neonatal deaths In Ethiopia, 16% of direct maternal mortality and 10% of all maternal mortality (direct and in direct) was due to pre-eclampsia. A maternal mortality trend analysis showed an increasing trend of pre-eclampsia in Ethiopia. However, there are few studies in Ethiopia, these have different objectives and study populations. Hence, this study can assess the prevalence and associated factors of pre-eclampsia among pregnant women in Agena primary Hospital.

Objective : To assess the prevalence and associated factors of pre-eclampsia among pregnant women attending antenatal care at Agena Primary hospital Ezha woreda Guraghe zone,central Ethiopia,From December 24 to January 6 2024

Method:A hospital-based cross-sectional study was conducted at Agena Primary hospital between December 24 to January 6 ,2024 G.C. A total of 141 pregnant women was enrolled in the study. A structured questionnaire via face-to-face interview technique was used for data collection. The data was collected, edited, tailed, coded, entered and analyzed by SPSS version 25. Descriptive statistics was used used to to summarize and present the data using tables, figures, and graphs.Bivariate analysis was used to assess the association between the dependent variable and independent variables. Variables with P value less than or equal to 0.25 were included in multivariable analysis. Variables with P value less than 0.05 will be considered as factors associated with pre-eclampsia

Result; A total of 141participants were enrolled in the study with a 100% response rate.The prevalence of pre-eclampsia among pregnant women who attended ANC at Agena primary hospital was 19.1%. Significant variables such as past history of pre-eclampsia (AOR = 7.144 ; 95% CI:(1.910,26.726) ,family history of hypertension (AOR =3.545 ; 95% CI:(1.068,11.769) , kidney disease(AOR = 5.035; 95%CI:(1.407,19.188), Diabetes mellitus (AOR =5.035; 95%CI:(1.324,19.151) and age 18-30 (AOR =0.167 ; 95% CI:(0.043,0.648) were significantly associated with pre-eclampsia

Conclusion. There is high prevalence of pre-eclampsia on the study area. Previous history of pre-eclampsia, kidney disease, family history of hypertension, Diabetes Mellitus and age 18-30 were associated factors of pre-eclampsia. Therefore, health professionals working in health institutions give more attention to controlling hypertension during antenatal service.

CHAPTER 1, INTRODUCTION

1.1 Background;

Preeclampsia is the leading causes of maternal and perinatal morbidity and mortality worldwide and it is a hypertensive disorder which usually occurs after 20 weeks of
gestation. It is a rapidly progressive condition characterized by elevated blood pressure and protein in the urine [1, 2].

Pre-eclampsia has a multifactorial etiology, it is said to occur due to disordered trophoblastic invasion that causes uteroplacental hypoperfusion, leading to a widespread endothelial dysfunction due to the secretion of certain angiogenic factors by the placenta [3]. High risk factors include PE in a previous pregnancy,Chronic kidney disease, and diabetes mellitus. Chronic hypertension or autoimmune diseases like SLE and antiphospholipid syndrome. Moderate risk factors include primigravida female, maternal age≥ 40, BMI ≥ 35 or family history of pre-eclampsia [4].

It is a multisystem pregnancy-specifc disorder happening in 3–5% of all pregnancies, and it is one of the leading causes of maternal and fetal morbidity and mortality [5].Hypertensive Disorder of Pregnancy (HDP) is one of the leading causes of maternal mortality and morbidity among pregnant women in the world [6]. Globally, it is the causes of nearly 12% of direct maternal deaths [7].

The risk of maternal death is 40 times higher in the least developed countries compared with European countries. Sub-Saharan African and Southern Asian countries accounted for about 66% and 20% of the global maternal deaths, respectively [8]. Pre-eclampsia accounts for up to 12% of all yearly worldwide maternal deaths and it is responsible for 25% of fetal and neonatal deaths [9]. The prevalence of preeclampsia ranges from 2% to 10%, which varies from one country to another [10]. The impact of preeclampsia is more severe in developing countries and the prevalence rate is between 1.8% and 16.7% [11]. In developed countries, where maternal mortality attributable to pre-eclampsia has been reduced, the condition primarily affects fetal well-being through intrauterine growth retardation, preterm birth, low birth weight and perinatal death [12-14].

Despite a steady reduction in maternal mortality from the disorder in more developed countries, it remains one of the most common reasons for a woman to die during pregnancy both in developed and developing countries[15]. Proper antenatal care and awareness about the complications can help decrease the incidence of preeclampsia. Scrutinizing the risk factors of Pre-eclampsia on an individual level can help in a better understanding of its etiology. [16]

1.2. Statement of the problem

Pre-eclampsia, a life threatening complication of pregnancy is a condition that typically starts after 20th week of pregnancy and is related to increased blood pressure (BP≥140/90 mm-Hg) and protein in mother's urine (urinary albumin protein ≥300 mg/24 h) [17].

The clinical spectrum of pre-eclampsia ranges from mild to severe. Pre-eclampsia occurs in 5–8% of pregnancies worldwide, and is the second leading cause of direct maternal and fetal deaths [18]. An estimated 50,000 women worldwide die annually from pre-eclampsia.The incidence of pre-eclampsia is 2-10%, depending on the population studied and definitions of pre-eclampsia [7].

The incidence was 2.8% reported from a study in Israel [19], 5.8% reported from Scotland [20],14.1% reported from Australia [21] and 5% reported from Seattle [22]. It occurs in 5 to 8% of pregnant women worldwide and can cause the most serious problems for the mother and the child The prevalence of pre-eclampsia varies in different populations and in different ethnic groups [23].

The World Health Organization (WHO) estimates of maternal death due to Hypertensive Disorder of Pregnancy (HDP) were 25.7% in Latin-American and Caribbean, and 9.1% in Asian and African countries [24, 25].

A study conducted in Ghana revealed that pregnancy induced hypertension has contributed for 8.9% maternal mortality [26].

In Ethiopia, preeclampsia contributes 11% of maternal deaths [27]. The Ethiopian National Emergency Obstetric and new-born care showed that preeclampsia contributed to the complication of approximately 1% of all deliveries and 5% of all pregnancies; moreover, it had contributed to 16% of direct maternal mortality and 10% of all maternal mortality and morbidity (direct and in direct) [28]. In Addis Ababa, preeclampsia increased from 2.2% in 2009 to 5.58% in 2013 [29].

However, the majority of deaths due to preeclampsia are avoidable through the provision of timely and effective management of such complications [30]. So far, there has been limited evidence from other studies that clearly indicate the prevalence and associated factors of preeclampsia in Ethiopia. Therefore, availing up-to-date information on the prevalence and associated factors of preeclampsia is essential for its early identification and management.

1.3 Significance of the study

Pre-eclampsia is one of the leading causes of maternal mortality in Ethiopia. It has been increasing and linked to multiple factors, making prevention of the disease a continuous challenge.

This study can assess the prevalence and associated factors of pre-eclampsia among pregnant women who attend antenatal care at Agena Primary Hospital.

It will also help to encourage heath seeking behaviors among pregnant women, which can lead to earlier diagnosis and prevention of complications.

Studying associated factors can contribute to a better understanding of the underlying pathophysiology of pre-eclampsia, potentially leading to new treatment options. Can inform the development of targeted interventions and educational programs focused on modifiable risk factors like diet, exercise, and managing underlying health conditions. It can provide epidemiological evidence for policymakers and implementer to reduce the occurrence of pre-eclampsia. It can help to address gaps in knowledge about pre-eclampsia, such as those that exist in Ethiopia.

CHAPTER 2, LITERATURE REVIEW

2.1,Maternal-specific risk factors of pre-eclampsia

Maternal age (years) and Body mass index: There is a conflicting data on the relationship of age with pre-eclampsia. Some studies have reported association between age and pre-eclampsia especially in elderly women above the age of 35 years, while others have shown an association of pre-eclampsia with younger age groups. Advancing maternal age as well as young maternal age is a risk factor for PE. Among the complications during pregnancy, pregnancy induced hypertension was commonest complication in elderly primigravida [31]. A high proportion of pre-eclampsia cases occur in those at the extreme ends of the reproductive age . Women above 40 years had twice the risk of pre-eclampsia, whether they were primiparous or multiparous women [32].There is evidence of strong and consistent relationship between high prepregnancy body mass index and pre-eclampsia [33]. Studies have shown that obesity is a definitive risk factor for pre-eclampsia risk.

Past history of pre-eclampsia in multiparous women: Mothers who had pre-eclampsia in the first pregnancy are known to be at a substantially higher risk to develop pre-eclampsia in a subsequent pregnancy . Multiparous patients with a past history of severe pre-eclampsia are a high risk population which should be identified early in pregnancy [34].

Maternal blood group: With respect to blood group O, A, B and Rh type, no statistically significant correlation with severe pre-eclampsia has been found. However in one study an increased risk of pre-eclampsia for mothers with blood type AB (adjusted odds ratio = 3.07; 95% confidence interval 1.486.36) has been found out. Although these results should be considered with caution, they support the hypothesis of a linkage mechanism involving blood group in the inheritance of susceptibility to pre-eclampsia [35].

Interval between pregnancies (in years): Some researchers have found that a long time to pregnancy is associated with pre-eclampsia , supporting the hypothesis that some factors delaying clinically recognized conception may also be in a causal pathway for pre-eclampsia [36]. The risk in a second or third pregnancy was directly related to the time that had elapsed since the preceding delivery, and when the inter birth interval was 10 years or more, the risk approximated that among nulliparous women. After adjustment for the presence or absence of a change of partner, maternal age, and year of delivery, the odds ratio for pre-eclampsia for each one-year increase in the inter birth interval was 1.12 (95%CI; 1.11 to 1.13) . In a cross sectional study, women with more than 59 months between pregnancies had significantly increased risk of pre-eclampsia compared with women with intervals of 18-23 months [37].

Number of previous abortions: A history of abortion in nulliparous women is a protective factor against the risk of pre-eclampsia in the subsequent pregnancy . Multiparous women, both with and without a history of abortion, have a reduced risk of pre-eclampsia compared to nulliparous women with no history of abortion . In another study, having a previous history of a spontaneous abortion was protective but only in multiparous women [38].

Sex of newborn: Mild pre-eclampsia seems to be associated with the carrying of a male fetus which may be due to increased testosterone [39].

Medical history of any autoimmune disease: Women with rheumatic disease had significantly higher rates of pre-eclampsia and cesarean section. The relative risk of pre-eclampsia was particularly high in women with connective tissue disease [40].

Gestational diabetes: Gestational diabetes is associated with pre-eclampsia [41]. The rate of pre-eclampsia is influenced by the severity of gestational diabetes. Optimizing glucose control during pregnancy may decrease the rate of pre-eclampsia, even in those with a greater severity of gestational diabetes. There is accumulating evidence that pre-eclampsia is at least partially mediated by insulin resistance, and that individuals with pre-eclampsia may have clinically silent and persistent alterations in insulin resistance.

However, these findings remain controversial because other studies have not observed a higher frequency of pre-eclampsia in gestational diabetic women . Recognized associations between correlates of insulin resistance and pre-eclampsia show that pre-eclampsia may be part of the spectrum of the insulin resistance syndrome [41].

Medical history of Diabetes mellitus: In women with pre-gestational diabetes, the rates of pre-eclampsia and adverse neonatal outcome increase with increased severity of diabetes. The results of the study showing a relationship between pre-eclampsia and diabetes among Pakistani women is also consistent with other studies' findings . In women with pre-gestational Type 1 diabetes, the rates of pre-eclampsia and adverse neonatal outcome increase with the presence of diabetes [42].

History of chronic hypertension; The most prevalent complication in pregnancy in women with chronic hypertension is the development of preeclampsia. In a more recent study of 822 women with chronic hypertension enrolled in a trial of antioxidants for the prevention of preeclampsia, the risk of superimposed preeclampsia was 22%. Of note, 44% of this 22% developed superimposed preeclampsia before 34 weeks of gestation, a rate that stands in contrast to patterns seen in women without chronic hypertension, who more commonly develop preeclampsia closer to term [43].

Family history of hypertension: There are consistent findings of a positive association between family history of hypertension and pre-eclampsia risk [44]. Family history of

hypertension is a proxy measure for hereditary factors as well as common environmental or behavioral exposures that may underlie pre-eclampsia risk. Women's family history of chronic hypertension is an important and easy to acquire clinical risk marker of pre-eclampsia compared to the biochemical markers. The family history of hypertension questions can be used as screening tool to identify pregnant women who need closer monitoring for the signs of pre-eclampsia during early pregnancy.

Family history of Pre-eclampsia: In a primigravida, a family history of pre-eclampsia is associated with a fourfold increased risk of severe pre-eclampsia. This clinical history identifies a group who warrant close clinical surveillance during pregnancy and who may be suitable for trials of prophylactic interventions .Genetic factors are important in the development of pre-eclampsia as well as gestational hypertension. In efforts to identify women with elevated risk of developing pre-eclampsia during pregnancy, a question about family history of pre-eclampsia is important .

The findings from these studies are biologically plausible for reason that epidemiological and clinical data document a close association between insulin resistance, type 2 diabetes, and hypertension [45].

2.2. Pregnancy-associated risk factors of preeclampsia

Urinary tract infection: Some studies show a significant increase in urogenital infection in pre-eclampsia pregnancy. This may reflect higher rates of underlying renal disease and placental bed abnormalities occurring in pre-eclampsia. Antepartum urinary tract infection is a risk factor for pre-eclampsia. Urinary tract infection or chronic sub clinical infections may cause increased maternal cytokines levels sufficient to affect vascular endothelial function, and so prime individuals for the subsequent development of pre-eclampsia . Some data show a significant increase in urogenital infection in pre-eclampsia pregnancy. This may reflect higher rates of underlying renal disease and placental bed abnormalities occurring in pre-eclampsia . Infectious agents have also been suggested to play a causal role also in atherosclerosis . These studies suggest there may be a possible link between infection and pre-eclampsia. Urinary tract infection during pregnancy may add to the inflammatory burden of a pregnancy and trigger pre-eclampsia in susceptible women [46].

Fetal malformations: Pre-eclampsia risk increases with structural congenital anomalies, polyhydramnios, hydropsfetalis, chromosomal anomalies like downs syndrome and hydatidiform moles [47].

Partner-related risk factors: Change in partner (Primipaternity: pregnancy with new father): The term primipaternity was introduced by Robillard et al . According to this theory, pre-eclampsia may be a problem of primipaternity rather than primigravidity. The control of placentaion may will have an immunological basis with an interaction occurring between maternal and fetal genes . This could explain why women are more at risk of pre-eclampsia in their first pregnancy and why parous women who later conceive by a new partner also have an increased susceptibility to the syndrome.Many studies confirm that change of partner raises the risk for pre-eclampsia in subsequent pregnancies. Multiparous women with a new partner should be approached as being primigravid women. The inter-pregnancy interval, which is strongly associated with change of partner, may confound or modify the paternal effect on pre-eclampsia [48]. Immune maladaptation on the fetal maternal interface could be an underlying mechanism.

Limited sperm exposure (condom use): The use of condoms, spermicides and withdrawal are associated with developing of pre-eclampsia in subsequent pregnancy . Compared to the use of condoms, use of contraceptive methods that permit exposure to sperm viable with uterus decreased the prevalence of pre-eclampsia . Use of condoms may contribute to as many as 60% of pre-eclampsia cases . The very high incidence (24%) of pre-eclampsia among new paternity multiparous women was shown to be related to remarkably short period of sperm exposure preceding conception . Multigravid women with a period of unprotected sexual cohabitation of longer than 6 months had a decreased risk of pre-eclampsia [49].

Husband's age (in years): Compared with pregnancies involving fathers aged 25 to 34, the risk of preeclampsia was 24% higher if men were 35 to 44 and 80% higher if they were 45 and older [50]. A possible explanation for the findings is that sperm are damaged because of genetic mutations that occur with aging or from environmental causes such as radiation, heat and pesticides. Such defects may somehow raise the risk of preeclampsia.

2.3 Exogenous factors of pre-eclampsia

Smoking (risk decrease): Many studies show that cigarette smoking is associated with a lower rate of pre-eclampsia among primigravidas independently of other maternal factors. The protective effect of smoking appears to continue even after cessation of smoking [51]. Perinatal outcomes were significantly worsened among preeclamptics who smoke. However, the harmful consequences of smoking on pregnancy outcome far outweigh this risk reduction .

However, some study results did not support the proposition that cigarette smoking protected women against pre-eclampsia.

Stress & Working women status: (Work-related psycho-social strain): Work related stress is also a risk factor for pre-eclampsia. Pre-eclamptic women were also more likely to work during pregnancy (adjusted OR, 2.1; 95% Cl, 1.1 to 4.4). Working women had 2.3 times the risk of developing pre-eclampsia compared with nonworking women . Epidemiologic studies show that relative risk for pre-eclampsia is increased in many stressful situations . Many risk factors for pre-eclampsia are stress related. Low-stress situations, on the contrary, are protective. Stress in pregnancy corroborates all physio-pathologic theories for pre-eclampsia [52].

2.4, Conceptual Framework

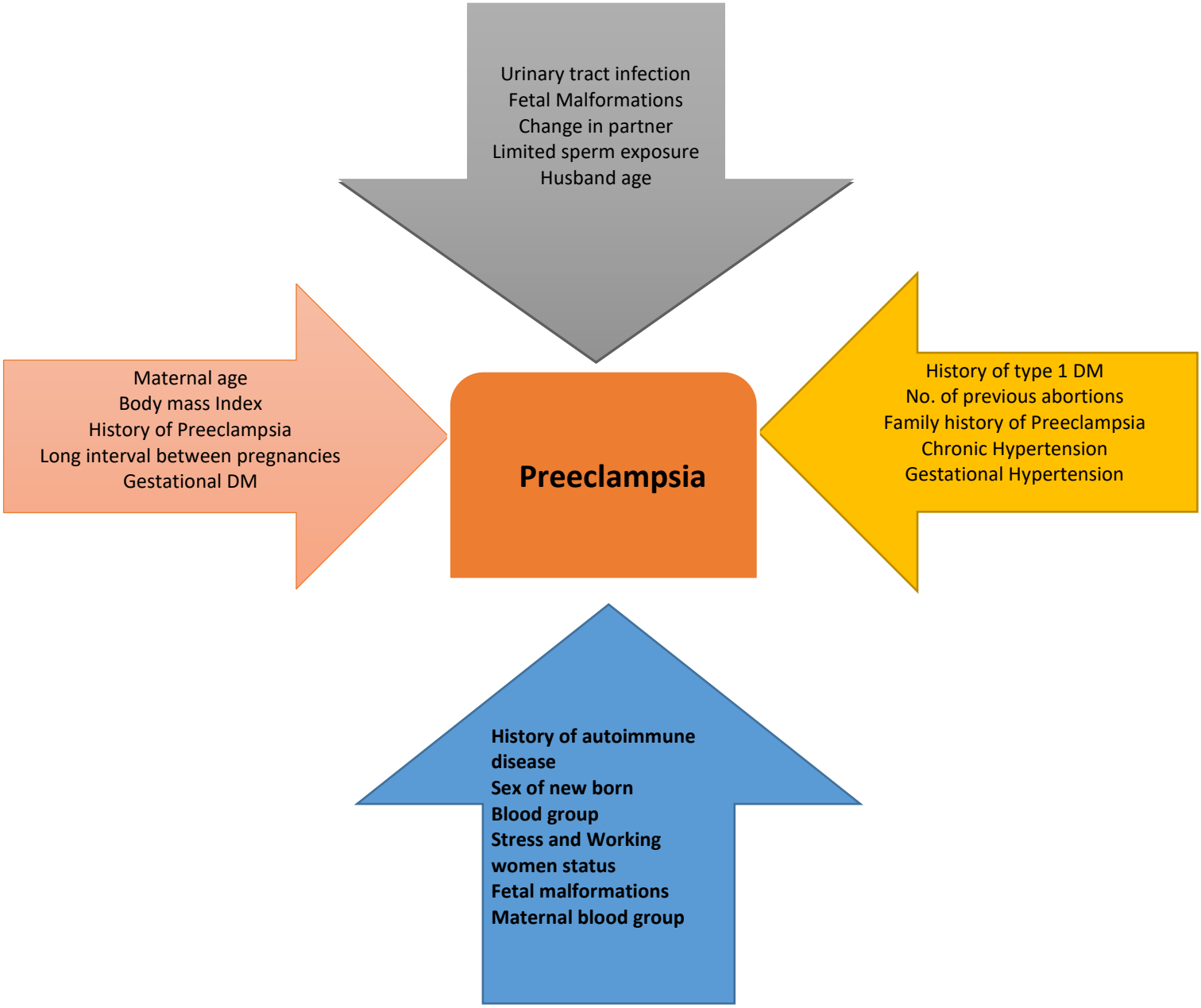

Figure 1 Conceptual framework of Preeclampsia and associated factors

CHAPTER 3, OBJECTIVES

3.1 General Objective

To assess the prevalence and associated factors of pre-eclampsia among pregnant women attending antenatal care at Agena Primary hospital Agena Town, Ezha Woreda, Guraghe Zone, Central Ethiopia, From December 24 to January 6 2025.

3.2. Specific Objective

- To determine the prevalence of pre-eclampsia pregnant women attending antenatal care at Agena Primary hospital Agena Town, Ezha Woreda, Guraghe Zone, Central Ethiopia,From December 24 to January 6 2025
- To identify factors associated with pre-eclampsia pregnant women attending antenatal care at Agena Primary hospital Agena Town, Ezha Woreda, Guraghe Zone, Central Ethiopia, From December 24 to January 6 2025

CHAPTER 4, METHODOLOGY

4.1.Study area and period

The study was conducted at Agena Primary Hospital. Agena Primary Hospital is found in Agena town administration Ezha woreda Guraghe zone, Central Ethiopia. Agena town is 181Km far away from Addis Ababa on Wolkite to Butajera Road. Agena Primary Hospital have 9 catchment area and 29641 population Major departments are Obstetrics and Gynecology Internal medicine Pediatrics, Minor Surgery and Pharmacy. Have 6 GP, 1 ISO, 4 HO, 4 Pharmacy, 15 Nurses, 7 Midwifes, 7 Lab Technicians,1 Environmental, 3 Health Extension, 1 Medical Engineer and 38 Supportive Staffs. The study period is from December 24 to January 6,2025.

4.2. Study design

Hospital based cross-sectional study design was employed from December 24 to January 6 2024 G C.

4.3. Source Population

The source of population for this study was all pregnant women who are on antenatal care follow up in Agena Primary hospital in the study period

4.3.1. Study population

The study population of this research was all pregnant women who were on antenatal care follow up at Agena Primary hospital in the study period and whose were with gestation age is greater than 20 weeks.

4.4 Eligibility criteria

4.4.1. Inclusion criteria

Pregnant women who had ANC follow up at Agena Primary hospital in the study period and who were with gestation age is greater than 20 weeks.

4.4.2. Exclusion criteria

Pregnant women who were chronically ill and unable to answer.

4.5 Sample Size and Sampling Technique

4.5.1. Sample size

The sample size was determined using a single proportion formula at a 95% confidence interval which is equal to 1.96, 5% margin of error. The proportion of the population 12.4% from prevalence of pre-eclampsia in kharl hospital Metu town Oromia region[29] and non-response rate of 5% was considered in the estimation of the sample size required for the study.

$n_0= z^2 p(1-p)/d^2$

Where:

n_0= sample size

Z= confidence of interval 95% (1.96)

P= single population proportion (0.124)

D= marginal error (0.05)

$n_0=1.96^2 0.124(1-0.124)/0.05^2$

$n_0=166$

The total ANC followup at Agena Primary Hospital with in three month report is 652 which was less than 10,000 so we use reduction formula.

n=no / (1+ (no/N))

n=166/(1+(166/652))

n=133, add non respondent rate 5% so n=133+8=141

n=141.

4.5.2 Sampling Technique

Simple Random sampling technique was used to select pregnant women.using lottery method by using Medical Registration Number as a smple frame

4.6. Study variables

4.6.1. Dependent variables:

Pre-eclampsia

4.6.2. Independent variables

- ❖ Age, party,gravidity
- ❖ Previous pre-eclampsia
- ❖ Family history of pre-eclampsia
- ❖ Family history of chronic hypertension
- ❖ Multiple pregnancy
- ❖ Change in partner
- ❖ DM
- ❖ Chronic hypertension
- ❖ Kidney disease
- ❖ Time between pregnancy
- ❖ Body mass index
- ❖ Smoking
- ❖ Alcohol drinking

4.7. Operational definition

Gestational age: is calculated from the last normal menstrual period (LNMP) and for those women who didn't recall their last menstrual period, fundalheight and/or ultrasound result was used.

Gravidity: the total number of pregnancies, including abortion, ectopic

Pregnancy and any other pregnancies documented on the chart.

Parity: the number of deliveries after 28 weeks of gestation including IUFD and still birth documented in the chart.

Pre-eclampsia: denotes for women with blood pressure of ≥140 mmHg systolic or ≥ 90 mmHg diastolic at time diagnosis,in which normotensive women before pregnancy after 20 weeks of gestational age.

4.8. Data collection instrument and procedure

A structured questionnaires was adopted and modified from reviewing different literature and scientific facts [1, 13–16]. Which had three parts was used to assess prevalence and associative factors of pre-eclampsia. The first part asks about socio-demographic information of mothers and the second part is all about obstetric factors of the mother. Finally, the behavioral characteristics,self and family history of woman using 21 questions which was developed by fourth year public health students and face to face interview was applied at antenatal. The calculated sample size was used to take the study subjects from the ante natal unit. Two fourth-year public health students was selected to collect the data and one student was selected as a supervisor. The selected data collectors and supervisor was trained on the topic, objective and benefit of the study and on individual's right, informed consent and techniques of the interview for two day prior to study.

4.9. Data quality control issues

The quality of data was controlled started from the time of questionnaires preparations. First the questionnaire which was prepared in English then translated into Amharic.To insure the consistency of the tool it was translated back to English. Training was given for supervisor and data collectors on the topic and purpose of the study, on how to approach study subjects and procedures of data collection for two days prior to the study. The collected data was checked out for the completeness, accuracy, and clarity by the principal investigator and supervisor. This quality checking was done daily after data collection and correction was made before the next data collection measure. Data clean up and cross-checking was done before analysis. And also data collectors and supervisor was given training on how to approach the participants and perform measurements. The performance of the instruments was checked and measurement tools monitoring was done. Participants was asked to remove tight outer-wearing to take correct blood pressure. Blood pressure measurement was taken by one nurses to avoid the inter-observer bias. The supervisor and the principal investigator was checked questionnaires on daily basis for in consistencies.

4.10. Data processing and analysis

The collected data was checked again manually, cross checked and coded. The data was analyzed using SPSS version 25. Descriptive statistics was used to to summarize and present the data using tables, figures, and graphs.

Binary logistic regression was used to assess the presence of association between the dependent variable and each independent variables. Variables with P value less than or equal to 0.25 were included in to multiple logistic regression. Then,variables with P value less than 0.05 was considered as factors associated with pre-eclampsia.

4.11. Ethical Consideration

All the ethical issues was considered and requested by using a legal letter written by College of Health science and Medicine Department of Public Heath to Agena Primary Hospital before the beginning of process of data collection. The purpose of study was briefly explained for the respondents, verbal informed consent also obtained from the respondents and the name of the respondents was not mentioned on the Paper.

4.12. Dissemination of Results

The finding of this study will be presented to wolkite University College of health science and Medicine, department of Public Health and will be disseminated for stake holder and influential person Agena Primary Hospital

CHAPTER 5

RESULT

5.1 Sociodemographic Characteristics of the Study Participants.

A total of 141 pregnant mothers with ANC visits were expected to participate in the study and 141 responded to the study, which makes our response rate of 100%.

Majority of the respondents were 31-49 years in age 76 (53.9%). Majority of the respondents were married 130 (92.2%). Most of the respondents had completed primary school 42 (29.8%).Majority of the respondents were Orthodox religion followers 82 (58.2%). Most of the respondents were Guraghe 107 (75.9%) and Majority of the respondents were house wife 47 (33.3%). (Table 1)

Table 1; Sociodemographic Characteristics pregnant women attending antenatal care at Agena PrimaryHospital October 5 to January 6 2024 G.C

Variables		Frequency	Percent %
Age of participants	19-30	65	46.1%
	31-49	76	53.9%
Marital status of participants	married	130	92.2%
	unmarried	1	0.7%
	Divorced	10	7.1%
Religion of participants	Muslim	32	22.7%
	Protestant	19	13.5%
	Orthodox	82	58.2%
	Catholic	8	5.7%
Ethnicity of participants	Guraghe	107	75.9%
	Amhara	12	8.5%
	Oromo	8	5.7%
	Others	14	9.9%
Educational level of participants	Illiterate	25	17.7%
	Read and Write	34	24.1%
	Primary	42	29.8%

	Education		
	College	25	17.7%
	Degree	15	10.6%
Occupation of participants	Government employed	32	22.7%
	House wife	47	33.3%
	merchant	46	32.6%
	Farmer	10	7.1%
	Others	6	4.3%

5.2. Reproductive and Obstetric Characteristics of Study Participants.

Majority of the respondents were 2-3 gravidity 89 (63.1%), No change in partner after the first pregnancy 129 (91.5%),Body mass index >=30 6(4.3%), 2-3 number of Parity 92 (65.2%), 1.5-2 years gap between pregnancies 73(51.8%) and 12 (8.5%) women had history of multiple pregnancy.(Table 2)

Table 2; Reproductive and Obstetrics characteristics of pregnant women attending antenatal care at Agena PrimaryHospital October 5 to January 6 2024 G.C

Variables		Frequency	Percent%
Number of gravidity	1	9	6.4
	2_3	89	63.1
	>=4	43	30.5
Change partner after the frist pregnancy	Yes	12	8.5
	No	129	91.5
Body mass index (in kilogram per meter square)	<18.5	10	7.1
	18.5-24.9	111	78.7
	25-29.9	14	9.9
	>=30	6	4.3
Number of parity	0	9	6.4
	1	31	22.0

	2-3	92	65.2
	>=4	9	6.4
Interval between pregnancy(in years)	0	9	6.4
	1.5-2	73	51.8
	2-5	49	34.8
	>5	10	7.1
History of multiple pregnancy	Yes	12	8.5
	No	129	91.5

5.3 Behavioral characteristics, self and family history of Study Participants

7 (5%) Of respondents were had history of smoking and History of use of alcohol 45(31.9%). 18 (12.8%) of the respondents were had past history of pre-eclampsia, 16 (11.3%) chronic hypertension, 19(13.5%) kidney disease and 21 (14.9%) DM. 33 (23.4%)of the respondents were had family history of chronic hypertension and 24(17%) pre-eclampsia (Table 3)

Table 3 ;Behavioral characteristics, self and family history of pregnant women attending antenatal care at Agena PrimaryHospital October 5 to January 6 2024 G.C

Variables	Category	Frequency	Percent%
Smoking	Yes	7	5.0
	No	134	95.0
Alcohol drinking	Yes	45	31.9
	No	96	68.1
Past history of preeclampsia	Yes	18	12.8
	No	123	87.2
chronic hypertension	Yes	16	11.3
	No	125	88.7
kidney disease	Yes	19	13.5
	No	122	86.5
Family history of hypertension	Yes	33	23.4
	No	108	76.6
Family history of	Yes	24	17

preeclampsia	No	117	83
Diabetes mellitus	Yes	21	14.9
	No	120	85.1

27 (19.1%) of the respondents were had >=140/90 of Blood pressure measurement at time of diagnosis.

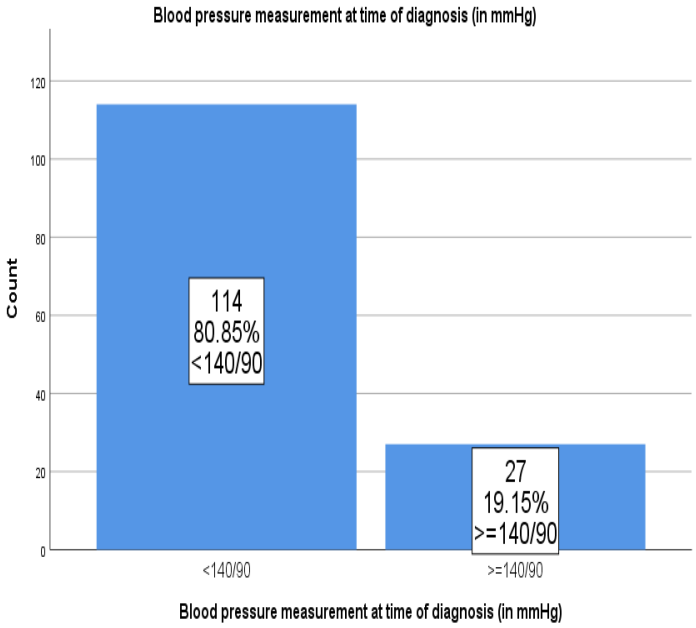

Figure 2; Bar chart show Blood pressure measurement at time of diagnosis. pregnant women attending antenatal care at Agena Primary hospital Agena Town, Ezha Woreda, Guraghe Zone, Central Ethiopia,From December 24 to January 6 2024

5.4 Bi-variate and multivariate analysis of the study participants

Bi-variable logistic regression was performed and those variables which had a P value <0.25 were entered into the multivariate logistic regression analysis. Only Twelve variables were selected for multivariate analysis, these were having history of pre-eclampsia in previous pregnancy,family history of hypertension,family history of pre-eclampsia,chronic hypertension, kidney disease,history of multiple pregnancy, alcohol drinking , Diabetes mellitus,history of change in partner after the first pregnancy,body mass index ,number of gravidity and women age .

The findings of this study confirmed that pregnant women who had a history of pre-eclampsia in a previous pregnancy (AOR = 7.144 ; 95% CI:(1.910,26.726) ,women who had family history of hypertension (AOR =3.545 ; 95% CI:(1.068,11.769) , pregnant women who had kidney disease(AOR = 5.035; 95%CI:(1.407,19.188), women who had Diabetes mellitus (AOR =5.035; 95%CI:(1.324,19.151) and pregnant women whom age 18-30 (AOR =0.167 ; 95% CI:(0.043,0.648) were significantly associated with pre-eclampsia (Table 4).

Table 4;Bi-variate and multivariate analysis of the study participants

Variables	Categories	COR (95%) CI	P value	AOR (95%) CI	P Value
Age	**19_30**	**0.151(0.049,0.465**	**0.001**	**0.167(0.043,0.648)**	**0.010**
	31-49	1		1	
No. Of gravidity	1	0.259(0.029,2.278	0.223	1.336(0.038,46.664)	0.873
	2-3	0.323(0.134,0.779)	0.012	0.709(0.159,3.51)	0.651
	>=4	1		1	
Change in Partner	yes	2.304(0.639,8.305)	0.202	1.477(0.261,8.366)	0.659
	No	1		1	
Body mass index	<18.5	1.25(0.089,17.653)	0.869	0.337(0.012,9.586)	0.524
	18.5-24.9	0.781(0.085,7.157)	0.827	0.332(0.026,4.272)	0.397
	25-29.9	2.33(0.809,6.23)	0.074	2.325(0.137,39.486)	0.559
	>=30	1		1	
History of multiple pregnancy	Yes	3.47(1.009,11.956)	0.048	0.805(0.129,5.043)	0.817
	No	1		1	
Alcohol drinking	Yes	1.964 (0.831,4.642)	0.124	1.333(0.392,4.378)	0.661

	No	1		1	
Past history of pre-eclampsia	**Yes**	**5.833(2.04,16.679)**	**0.001**	**7.144(1.910,26.726)**	**0.003**
	No	1		1	
Chronic hypertension	Yes	2.971 (0.974,9.066)	0.056	2.089(0.457,9.558)	0.342
	No	1		1	
Kidney disease	**Yes**	**3.943 (1.402,11.086)**	**0.009**	**5.035(1.407,19.188)**	**0.018**
	No	1		1	
Family history of chronic hypertension	**Yes**	**2.875(1.172,7.054)**	**0.021**	**3.545(1.068,11.769)**	**0.039**
	No	1		1	
Family history of pre-eclampsia	Yes	3.300(1.255,8.679)	0.016	1.024(0.241,4.380)	0.975
	No	1		1	
Diabetes mellitus	**Yes**	**4.250 (1.565,11.541)**	**0.005**	**5.035(1.324,19.151)**	**0.018**
	No	1		1	

CHAPTER 6

DISCUSSION

Pre-eclampsia is pregnancy-induced hypertension with significant proteinuria. It is one of the major causes of maternal mortality worldwide. This study revealed that the
prevalence of pre-eclampsia to be 19.1%.

The finding was high as compared with the studies conducted in different
parts of Ethiopia,Jimma University Hospital, Ethiopia (7.6%) [53] 4.4% in Dessie referral hospital, Ethiopia [28] and 2.23% in Dilla hospitals, Ethiopia [54]. This variation might be due to the fact that there is a difference in study setting, socio
economical differences, method difference, and a difference in time duration.

According to this study, those with a family history of hypertension had about three times greater odds of developing pre-eclampsia compared with those who have
not. this finding is in line with studies conducted in Brazil [55], Sudan [56], Pakistan [57], and Uganda [58]. This might have occurred due to genetic factors that contribute to the physiologic predisposition of pre-eclampsia. Those with a past history pre-eclampsia had about seven times

greater odds of developing pre-eclampsia compared with those who have not. This finding is in line with studies conducted in Adis abeba [59] This might have occurred a such history which underscores the importance of strict and earlier monitoring of pre-eclampsia patients in their subsequent pregnancies.

This study confirmed that there is a presence of low odds of developing preeclampsia in young women, women with age of 18-30 are decreased in 16% to develop preeclampsia than those age are 31-49. This is congruent with the study conducted in Desse, Ethiopia [28]. This could be explained as the woman gets older, she is more likely to have cardiovascular problems. This would particularly happen due to the gradual loss of compliance of the cardiovascular vessels that is mainly associated with ageing of uterine blood vessels and arterial stiffness. In addition, when the woman gets older, the hemodynamic adaptations during pregnancy becomes more difficult [60].

Those pregnant women with history of diabetes mellitus were about five times more likely to develop pre-eclampsia. The report in the present study was in line with the research done in Thailand [61].Genetic factors might be responsible to predisposing women to an increase risk of pre-eclampsia. Those pregnant women with history of kidney disease were about five times more likely to develop pre-eclampsia.this was in line with research done in Morocco [62]..this might be kidney disease associated with impaired glycocalyx integrity and alterations in complement and Renin angiotensin aldosterone systems.

Unlike other literature [61], tobacco smoking is not significant in this study. This might be due to the small cells in the category. History of multiple pregnancies was not a common risk factor in our study population unlike other studies [4] as only 8.5% of patients had multiple gestations in our study. Women with multiple pregnancies have a large-sized placenta which results in relatively decreased placental perfusion. The excess of placenta tissues not perfused adequately compared to the women with singleton pregnancy contributes to the risk of pre-eclampsia [59].

Obesity was present in 4.3% of participants. 9.9% of participants had a BMI value ranging between 25 and 29.9 which is similar to the results of various other studies [63,64]. The proposed mechanism behind obesity being a risk factor of pre-eclampsia is insulin resistance and systemic inflammation leading to endothelial dysfunction and resulting in multi-organ involvement [65].

Family History of pre-eclampsia was another prevalent factor in our study population (17% of participants).Studies show that patients with a strong family history of pre-eclampsia are more likely to develop pre-eclampsia than those who don't have such a history [66].

History chronic hypertension also another prevalent factor in our study population (11.3% of participants).Studies show that women with chronic hypertension are more likely to develop pre-eclampsia than those who don't have such a history.

However the rest of the studied factors,like change in partner after the first pregnancy are uncommon in our study population,this might small sample size in our study.

CHAPTER 7

STRENGTH AND LIMITATION OF THE STUDY

- Variables like alcohol drinking were not included in most studies are included in this study.
- Being an institutional based study, it could be difficult to infer the finding of the study to the target population as all pregnant women may not attend their pregnancy in the hospital.

CHAPTER 8

CONCLUSION

The findings of this study showed that a considerable proportion of pregnant women experienced pre-eclampsia. Past History of pre-eclampsia, family chronic hypertension,
Kidney disease diabetes mellitus and age of women were associated factors of pre-eclampsia. other risk factors are history of multiple pregnancy,family history of preeclampsia,chronic hypertension and obesity.

CHAPTER 9

RECCOMMENDETION

- Health professionals working in health institutions give more attention to controlling hypertension during antenatal service.
- Agena primary hospital have to Encouraging pregnant women's health seeking behavior would provide a chance to diagnose preeclampsia as early as possible.
- Health professionals working in health institutions give more attention in Identifying risk factors at early gestational age would be valuable for the prevention of occurrence, treatment, and prevention of complications of pre-eclampsia.
- Agena primary hospital have to give health education for women on modifiable risk factors.

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ANNEX -1

QUESTIONER:

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

ENGLISH VERSION PARTCIPANT INFORMATION SHEET

Good morning / afternoon?

My name is _____ I am a student at Wolkite University College of medicine and Health science Department of Public Health. The objectives of this study: is to assess prevalence and associated factors of preeclapsia among pregnant women attending antenatal care at Agena Primary Hospital December 24 to January 6 2024 G.C.

There is no foreseen risk by being participating in the study. I am going to ask you some questions that are very important for the programmers in community health service to plan improved interventions. Your name will not be written in this form and the information you give is kept confidential. If you do not want to answer, all or some of the questions you do have the right to do so. However, your willingness and support to answer the entire question would be appreciated and thank you very much.

Would you participate in responding to questions in these questionnaires?

Yes _____ No _____

Name and signature of Interviewer _____

GENERAL INSTRACTIONS

All questions in this paper are based up on maternal recall. It is very important that you ask each question exactly as it is written on the questionnaires. It is important that you do not Read this alternatives allowed to the mothers response/ answers, and then circle the code next to the category that best matches her answers.

Study Title: prevalence and associated factors of preeclapsia among pregnant women attending antenatal care at Agena Primary Hospital.

Part I: Socio-demographic characteristics

1	Age	≤18 19 – 30 31 – 49 50– 65 ≥ 65
2	Marital status	Married Unmarried Divorced Separated
3	Religion	Muslim

		Protestant Orthodox Catholic Other
4	Ethnicity	Guraghe Amhara Oromo Other
5	Educational level	Illiterate Read and write Primary education College Degree
6	Occupational	Governmental/private employed House wife Merchant Other

Part 2; Reproductive and obstetric characteristics of women

1	No Gravidity	1 2—3 ≥4
2	Are you change your partner after privies pregnancy?	Yes No
3	Body Mass Index	≤18.5 18.5-24.9 25-29.9 ≥30
4	No Parity	0 1 2—3 ≥4
5	Interval between pregnancy	18 month 18-24 months 2yr-5yrs ≥5yrs
6	Have you history of multiple px?	Ye

		No

Part 3; Behavioral characteristics and family history of women

1	Are you use tobacco	Yes No
2	Are you use alcohol	Yes No
3	Woman's BP measurement at time of diagnosis	< 140/90 ≥ 140/90
4	Previous History of pre-eclampsia	Yes No
5	History of chronic hypertension	Yes No
6	History of kidney disease	Yes No
7	Have you family history of hypertension	Yes No
8	Have you family history of preeclamsia	Yes No
9	Have you history of DM	Yes No

Name of the data collector _____

Signature _____

Date _____

THANK YOU!!!

የ ወልቂጤ ዩ ኒ ቨ ር ሲ ቲ የ ህ ክ ምና ና ጤና ሳ ይ ን ስ ኮ ሌ ጅ የ ህ ብ ረ ተ ሰ ብ ጤና ክ ፍ ል

የ አ ማ ረ ኛ ሥ ሪ ት የ ተ ሳ ታ ፊ መ ረ ጃ ቅ ፅ

እ ን ደ ት አ ደ ሩ / ዋ ሉ ?

ስ ሜ _____በ ወ ል ቂ ጤ ዩ ኒ ቨ ር ሲ ቲ ህ ክ ምና ና ጤና ሳ ይ ን ስ ኮ ሌ ጅ የ ህ ብ ረ ተ ሰ ብ ጤና ክ ፍ ል ተ ማ ሪ ነ ኝ ።

የ ዚ ህ ጥ ና ት ዓ ላ ማ ዎ ች ፡ ከ ታ ህ ሳ ስ 15 እ ስ ከ 28 2017 ዓ . ም በ አ ገ ና የ መ ጀ መ ሪ ያ ደ ረ ጃ ሆ ስ ፒ ታ ል የ ቅ ድ መ ወ ሊ ድ እ ን ክ ብ ካ ቤ በ ሚ ከ ታ ተ ሉ ነ ፍ ሰ ጡ ር እ ና ቶ ች መ ካ ከ ል በ እ ር ግ ዝ ና ወ ቅ ት የ ሚ ከ ሰ ት የ ደ ም ግ ፊ ት (ፕ ሪ ኤ ክ ላ ም ፕ ሺ የ) ያ ለ ው ን ስ ር ጭ ት እ ና ተ ያ ያ ዥ ም ክ ን ያ ቶ ች ን ለ መ ገ ም ገ ም ነ ው ።

በጥናቱ ውስጥ በመሳተፍዎ የሚደርስበወት ምንም አይነት አደጋ የለም። በማህበረሰብ ጤና አገልግሎት ውስጥ ያሉ ፕሮግራመሮች የተሻሻሉ የህክምና መንገዶችን ለማቀድ በጣም አስፈላጊ የሆኑ አንዳንድ ጥያቄዎችን እጠይቃችዎታለሁ። ስምዎ በዚህ ቅጽ አይጻፍምእና የሚሰጡት መረጃ በሚስጥር ይጠበቃል። መልስ መስጠት ካልፈለጉ፣ ሁሉም ወይም የተወሰኑት እርስዎ ያደረጓቸው ጥያቄዎች ይህንን ለማድረግ ሙበት አሎት። ነገር ግን፣ መሉ ጥያቄውን ለመመለስ ፍቃደኝነትዎ እና ድጋፍዎ አድናቆት ይኖረዋል እና በጣምእናመሰግናለን።

በእነዚህ መጠይቆች ውስጥ ለጥያቄዎች ምላሽ በመስጠት ይሳተፋሉ?

አዎ……

አይደለም……

የጠያቂውስምእና ፊርማ……..

አጠቃላይ መመሪያዎች

በዚህ ጽሑፍ ውስጥ ያሉት ሁሉም ጥያቄዎች በእናቶች የማስታወስ ችልታ ላይ የተመሰረቱ ናቸው:: እያንዳንዱን ጥያቄ በመጠይቁ ላይ እንደተጻፈ በትክክል መጠየቅዎ በጣም አስፈላጊ ነው። ይህንን ለእናቶች ምላሽ/መልሶች የተፈቀደላቸውን አማራጮች እንዳታነቡ እና ከዛም እሷን ከመልሶቿ ጋር በተሻለ ሁኔታ ከሚስማማው ምድብ አጠገብ ያለውን ኮድ አክብብ።

የጥናት ርዕስ፡ በአገና የመጀመሪያ ደረጃ ሆስፒታል በቅድመ ወሊድ እንክብካቤ በሚከታተሉ ነፍሰ ጡር እናቶች መካከል በእርግዝና ወቅት የሚሰት የደምግፊት (ፕሪኤክላፕሺያ) ስርጭት እና ተያያዥምክንያቶች።

ክፍል አንድ፡ - ማህበረ-ሕዝብ ባህሪያት

1	ዕድሜ	≤18 19 – 30 31 – 49 50– 65 ≥ 65
2	የጋብቻ ሁኔታ	ያገባ ያላገባ የተፋታ
3	ሃይማኖት	መስሊም ፕሮቴስታንት ኦርቶዶክስ ካቶሊክ ሌላ
4	ብሄር	ጉራጌ አማራ ኦሮሞ ሌላ
5	የትምህርት ደረጃ	ያልተማረ ማምበብና መጻፍ የመጀመሪያ ደረጃ ትምህርት ኮሌጅ

		ዲግሪ
6	የስራደርሻ	የ መን ግስ ት/የ ግል ተቀጥሮ የ ቤት እ መቤት ነ ጋዴ ሌላ ዲግሪ

ክ ፍል 2;የ ሴቶች የ መራቢያ እ ና የ ወሊድ ባ ህ ሪ ያ ት

1	ስንተኛእ ር ግ ዝ ና ወት ነ ው?	1 2—3 ≥4
2	ከ ቅ ድ መ እ ር ግ ዝ ና በ ኋ ላ አ ጋ ር ዎ ን ለ ወጠ ዋ ል?	አ ዎ አ ይ
3	ተ ከ ለ ቁ መ ና	≤18.5 18.5-24.9 25-29.9 ≥30
4	ስ ን ት ል ጅ አ ለ ወት?	0 1 2 - 3 ≥4
5	በ እ ር ግ ዝ ና ያ ለ ው እ ር ቀ ት	18 ወር 18_24 ወር 2_5ዓመት 5 ዓመት
6	መን ታ ወልደ ው ያ ውቃሉ?	አ ዎ አ ይ

ክ ፍል 3;የ ሴቶች ባ ህ ሪ እ ና የ ቤተሰ ብ የ ጤና ታሪ ክ

1	ት ምባ ሆ የ ጠቀ ማሉ?	አ ዎ አ ይ
2	አ ል ኮ ል ይጠቀ ማሉ?	አ ዎ አ ይ
3	የ ግ ፊ ት ምጥ ን በ ምር መራ ው ወቅ ት?	< 140/90 140/90-160/110 > = 160/110
4	ከዚህ በፊት ብሪክላምሺያ ነ በረበት	አ ዎ አ ይ
5	የ ቆዬ የ ደ ም ግ ፊ ት አ ለ በ ት?	አ ዎ

		አይ
6	የኩላሊት በሽታ አለበወት?	አዎ አይ
7	የደም ግፊት ያለበት የቤተሰብ አባል አለ?	አዎ አይ
8	ፕሪክላምሺያ ያለበት የቤተሰብ አባል ነበር?	አዎ አይ
9	የስኳር በሽታ አለወት?	አዎ አይ

የመረጃ ሰብሳቢውስም _____

ፊርማ _____

ቀን _____

አመሰግናለሁ!!!