COLLEGE OF MEDICINE AND HEALTH SCIENCE

ADVERSE PREGNANCY OUTCOMES AND ASSOCIATED FACTORS AMONG ADVANCED AGE PRIMIGRAVIDAE WOMEN IN GURAGE ZONE PUBLIC HOSPITALS, SOUTHERN ETHIOPIA: A COMPARATIVE CROSS-SECTIONAL STUDY 2022.

BY: Feima Ahmedin
Asma Kamil
Tseganesh Lencha

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WOLKITE UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCE

Name of investigators	1. Feima Ahmedin E-mail: fehimahmedin@gmail.com 2. Asma Kamil E-mail: Asmite kamil@gmail.come 3. Tseganesh Lencha E-mail: tseganeshlencha@gmail.com
Name of advisors	1. Mr. Fentaye Chemir (Ass't Prof) 2. Mr. Daniel Tsega (MSc in MRH)
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Adverse pregnancy outcomes and associated factors among advanced age primigravidae in Gurage zone public hospitals, southern Ethiopia: a comparative cross-sectional study 2022.

Submitted by:

Name of student	Signature	Date
1. Feima Ahmedin	_________________	____________
2. Asma Kamil	_________________	_____________
3. Tseganesh Lencha	_______________	_____________

Advisors

Name	Signature	Date
1. Mr. Fentaye Chemir (Ass't Prof)	______________________	______________
2. Mr. Daniel Tsega (BSc, MSc in MRH)	__________________	______________

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Abbreviation and Acronyms

AMA ………………………………. Advanced Maternal Age

ANC ……………………………… Antenatal care

AOR ………………………………. Adjusted odds ratio

CI ………………………………… Confidence Interval

COR ………………………………. Crud odds ratio

NICU …………………………….. Neonatal Intensive Care Unit

PNC ……………………………… Postnatal care

SDG ……………………………… Sustainable Development Goals

SPSS ………………………………Statistical Package for Social Science

WHO ……………………………... World Health Organization

Abstract

Introduction:Adverse pregnancy outcomes means those pregnancy outcomes are either maternal or perinatal outcomes other than normal live birth which majorly includes: pregnancy induced hypertension, Antepartum Hemorrhage, Postpartum Hemorrhage, Cesarean delivery, Congenital Anomalies, Perinatal Death. Elderly primigravidae means a woman who is going to pregnancy and bring birth for the first times at the age of 35 or older years. In the world, every day around 830 women die due to adverse pregnancy and perinatal outcomes

Objective: The aim of this study is to assess adverse pregnancy outcomes and associated factors among advanced age primigravidae in gurage zone public hospitals, southern Ethiopia: a comparative cross-sectional study 2022.

Methods: Institutional based comparative cross-sectional study design was conducted among **122** study groupand **122** comparison groups in gurage zone public hospitals. Data was collected using pre-tested and structured questionnaires by reviewing charts and it was coded, checked and entered into SPSS version 25 for analysis. Chi-square test and independent t-test was done to compare categorical and continuous variables accordingly. Bivariabl analysis was done to see the crude significant relation of each independent variables with dependent variable individually. Then Variables with P value $\leq$ 0.25 during the Bivariabl analysis was entered to multivariable analysis to see the neat effect of each independent variable on the outcome variable. Finally variables with P value less than 0.05 was considered as statistically significant.

Result: This study was conducted among a total of 244 women who participated in the study classified into a study group and a comparison group of 122 participants for each with a response rate of 100%. The overall prevalence of adverse pregnancy outcomes results was 74.5% (95%; CI: 66.5%-83.7%) of study group and 42.6% of comparison group. The factors significantly associated with adverse pregnancy outcomes were rural resident [AOR: 4.76 95%; CI: 1.073 – 65.00], Spontaneous vaginal delivery (AOR: 0.007, 95%; CI: 0.001-0.057) and unplanned pregnancy (AOR: 0.023, 95%; CI: 0.003-0.175).

Conclusion: The prevalence of adverse pregnancy outcomes in this study is higher as compared to other literatures. Rural resident were positively significantly associated with adverse pregnancy outcomes, while planned pregnancy and spontaneous vagina mode of delivery were protective factors that significantly associated with adverse pregnancy outcomes.

Key words: Maternal and perinatal outcome, age, parity, Gurage, South region, Ethiopia.

1. INTRODUCTION

1.1. Background

Adverse pregnancy outcomes means those pregnancy outcomes are either maternal or perinatal outcomes other than normal live birth which majorly includes: maternal chronic illness like obesity, chronic hypertension, preeclampsia, anemia, gestational diabetes mellitus, Obstetrics complications like antepartum hemorrhage, postpartum hemorrhage, Malpresentations, prolonged labor, instrumental delivery, Cesarean delivery and Adverse Neonatal outcomes like increase the incidence of preterm labor, low birth weight, Congenital Anomalies, Perinatal Death [1-4]. Advanced maternal age defined aswomen who become pregnant and delivered their child at the age of 35 and above years [1]. Elderly primigravidae means a woman who is going to pregnancy for the first times at the age of 35 or older years[5, 6].Even if, pregnancy and child bring is normal physiological process, all pregnancies are at risk of different complication, among this risk maternal ageis an important determinant factors of pregnancy outcomes that means women become pregnant for the first time on the age of 35 or older years are considered as high risk for adverse maternal and perinatal outcomes [7]. Maternal age and parity are the most determinant factors in maternal and neonatal outcomes [8]. Elderly pregnant women are at higher risk for the occurrence of many complications and increased maternal and fetal morbidity and mortality[7].

Both maternal age and parity have been considered a vital determinant factors in pregnancy outcomes and obstetric performance that means when the maternal age increase to 35^{+} years with nulliparous resulted adverse obstetrical, maternal and perinatal outcomes [7]. When increasing maternal age above 35 years with primigravidae is risk for decreased fertility rate and increase adverse obstetrics, maternal and perinatal outcomes, when maternal age is increased the fertility rate is decreased, which means decline in ovarian oocyte reserve and poor oocyte quality, this poor oocyte quality is associated with an increased risk for chromosomal abnormalities, aneuploidy and spontaneous abortions[9-11].

Delayed childbearing until 35 and older years are associated with increased the proportion of obstetrical and perinatal complications as well as adverse pregnancy outcomes as compared to young age child bring women [12]. Due to advanced educational level and improving career status, in the last four decades there was various significant changes in the demographics of

childbearing have been observed in both developed and developing countries [13-15]. Among these changes include increasing trends in age at first marriage, postponing childbearing until advanced reproductive yearsafter marriage and increasing proportion of primigravidae their first pregnancy until 35 and older years [15-17].Women become pregnant at advanced maternal age associated with increased instrumental delivery and cesarean section especially emergency cesarean section as compared to child bring of young women [18]. The modern way of life style associated with increased the marriage age due to educational, social and economic aspects and to arrange setups as well as to seek employment [19].

1.2. Statement of problem

According to world health organization (WHO) reports reveled that in the world, every day around 830 women die due to adverse pregnancy outcomes [20, 21]. In the single year of 2015 more than 3303,000 women were died due to antepartum pregnancy complications and Intrapartum child birth complications [22].Globally, the adverse pregnancy outcome such as pregnancy induced hypertension, stillbirths, antepartum hemorrhage, postpartum hemorrhage, abortions and preterm births are being used as a maternal health guides[20, 23].Each year in the world 15 million babies are born prematurely million of them die immediately after birth, the remaining are suffer from lifelong mental disorder, physical disability and educational handicap [24, 25]. Among preterm delivery due to advanced maternal age 60% of them occurred in south Asia and sub-Sahara Africa [26]. Currently the number of pregnancies at advanced maternal age as well as the mean maternal age at first childbirth have been increasing significantly. In developed countries the percentage of giving first birth in the age of 35-39 increasing by 24% as well as in the age of 40-44 increasing by the percentage of 35% [15, 27].

Different study show that the adverse pregnancy outcomes were prevalent in elderly primigravidae (first pregnancy at the age of 35^{+}) as compared to young age primigravidae. In Norway the magnitude of adverse pregnancy outcomes among advanced maternal age was 33.4% [28]. In United Kingdom the prevalence of adverse pregnancy outcomes was 18.2% among maternal ages of 35 years or older[29]. In Poland, the proportion of women who delivered live births at the age of 35 and older years were increased almost twice - from 9.1% in 2005 to 16.3% in 2016[30]. In the United States, the percentage of live birth from women whose age were between 35–39 was 51.0 births per 1,000 women, in Taiwan the proportion of women who bring birth at advanced age from time to time from 11.4 to 19.1% [10, 31] and in Egypt found that the proportion of elderly primigravidae (35-40 years) was 26% [32].

Even if, one of the main aims of Sustainable Development Goals (SDG) desired to accomplish reduction of neonatal mortality and improving of their health at 2030, neonatal mortality is still unacceptably high[33]. Among the causes of this unacceptable neonatal morbidity and mortality continuation and one of the gaps to achieve the SDG is adverse birth outcomes due to advanced maternal age of childbirth [11, 34]. Number of factors are responsible for the advanced maternal age of marriage and childbirth, in the modern society, technology advanced and developed world

women are postpone marriage and childbearing resulting in elderly primigravidae as well as advanced maternal age of childbirth after marriage, which is defined as age 35 years or older at estimated date of delivery [35]. Among these factors pursuit of higher education, entry into a work force, career advancement,availability of better contraceptive options, advances in assisted reproductive technology,increase rate of divorce, sign of modernization, social and cultural shifts, lack of ANC, pre-existing medical diseases and obstetric complications during pregnancy are factors contribute to advanced age maternal marriage and childbirth [13, 14, 36].Adverse pregnancy outcomes have a strong and consistence association with demographic, environmental, biological, and social factors [37].Therefore this study aimed adverse pregnancy outcome and its associated factors.

1.3. Significance of the study

Nowadays delayed childbearing has become increasing and it believed to be associated with an increased rate of adverse pregnancy outcomes such as obstetrical, maternal and perinatal complications. Pregnant women in advancedmaternal age especially when they are primigravidae with advanced age the complication become more severe which develop antepartum hemorrhage, congenital disorders, spontaneous abortion, stillbirth, postpartum hemorrhage, preterm birth, caesarean delivery andsepsis [38]. This study will be greatly contribute to determine the magnitude and associated factors of adverse pregnancy outcomes among elderly primigravidae. The community will be benefited, as recommendation will be given to the zonal health department and for each hospitals of the study will be conducted. The maternal especially child mortality due to adversepregnancy outcomes will be decreased by appropriate maternal health education about the importance of young child bring (20-34 years). This study will be used as a base line data for other researchers.

2. Literature Review

2.1. Prevalence of adverse pregnancy outcomes

A retrospective cross-sectional study conducted in 29 countries (Africa, Asia, Latin America, and the Middle East) show that, 12.3% of women become pregnant and give childbirth at advanced age (35^+) years [10].Retrospective cross-sectional study done in India show that, Pregnancy Induced Hypertension was significantly high in advanced age women 20.62% than young age women 14.76% with a significant difference between study and comparison group and chronic hypertension 3.4 times higher at advanced age women, this appearance of advanced age pregnancies due to the reason of strong desire to be higher socio-economic class, better education status, and more food availability [39]. A comparative cross-sectional study conducted in Denmark revealed that, the adverse perinatal outcomes among AMA women was 10.8% as compared to 5.4% among young age women [40].A similar study done in Nepal revealed that, the adverse pregnancy outcomes among AMA of hypertensive disorders of pregnancy 26.8% in elderly primigravidae as compared to 4.9% young primigravidae, Preterm Labor 14.63% in elderly primigravidae as compared to 6.09% young primigravidae with a significant difference between study and comparison group[7].

A case-control study done in Oman show that, in AMA the adverse pregnancy outcomes of preeclampsia was 19.2% in elderly primigravidae as compared to 4.1% young primigravidae and cesarean section rate up to 38.4% in elderly primigravidae as compared to 21.9% in young primigravidae with a significant difference between study and comparison group [15]. A comparative cross sectional study done in Saudi Arabia show that, the AMA group had a significantly difference of higher proportion of gestational diabetes mellitus of 32.0% in elderly primigravidae as compared to 13.2% in young primigravidae [41].

A case control retrospective study conducted in Egypt show that, complications during pregnancy among study groups (35^+ years) were 19.98% as compared to comparison group (20-34 years) with a highly significance difference, NICU Admission in study group were 12.65% whereas in comparison group were 2% with a significant difference [42]. The prospective observational study carried out in Egypt show that, antepartum complications like preeclampsia were more common in elderly primigravidae (study group) 19.2% than comparison group 8.2%,

fetal distress in study group 20.8% as compared to comparison group 11.5%, NICU admission 29.2% in study group as compared to 12.3% comparison group with a significant difference between elderly primigravidae and younger primigravidae[9]. A comparative cross sectional study done in Nigeria revealed that, adverse pregnancy outcomes of pregnancy induced hypertension was 22.34% elderly primigravidae as compared to 6.38% young primigravidae (20-34) years and Caesarean section was 52.13% primigravidae as compared to12.76% young primigravidae (20-34) years with a significance difference between study group and comparison group [17].

A comparative cross-sectional study done in north Ethiopia revealed that, among advanced age (≥35 years) mothers and adult age (20–34 years) mothers, the overall adverse pregnancy outcomeswere64.6% vs 37.8% respectively which shows there is a significant difference between advanced age and young age groups on maternal and perinatal outcomes and the overall adverse neonatal outcomes in advanced age women were 74.7% as compared to young age women 25.3%[1].A similar institutional based comparative cross sectional study conducted in Awi zone, northern Ethiopia show that, 29.1% of advanced age women had adverse perinatal outcomes as compared to 14.5% of young women had adverse perinatal outcomes with a significant difference between advanced age and young age women as well asaround 21% of AMA women had complication during pregnancy, as compared to 14.5% of young aged women, complications during labor-delivery were significantly more common among AMA women 23.4% than adult aged women 15.9% and significant difference of newborn born from AMA women 18.9% had low first minute Apgar score compared to 10.4% young aged women newborns [11].

2.2. Factors associated with Adverse Pregnancy outcomes

2.2.1. Socio-demographic factors

Age: An institutional based cross sectional study conducted in Hawassa town southern Ethiopia show that, women within the age range of 35-45 years were 2 times more likely to have adverse pregnancy outcomes as compared to women whose age range of 20–34 years (AOR = 2.3, 95% CI: 1.1–4.2) [36].A case control study done in Debre-Tabor town northern Ethiopia show that, women who age group of 35-44 years were 2.5 times more likely to have adverse pregnancy outcomes as compared to those young age women (AOR = 2.54 95%, CI: 1.27, 5.06) and women whose age range of 45-54 years were 2.8 times more likely to have adverse pregnancy outcomes as compared to counterparts (AOR = 2.79 95% CI: 1.27, 6.16) [37]. An Institution based comparative cross-sectional study in southern Ethiopia show that, women whose age of 35^{+} years were 2 times more likely to have adverse pregnancy outcomes as compared to those young age women (20-34 years) (AOR = 1.88 95%, CI: 1.078, 3.288)[43].

Education: lower educational level in rural area of china were risk for low utilization of antenatal care and ignorance of obstetrics complications during pregnancy may pose life threating complication of maternal and child health. With the beginning of "national two-child policy", their strong fertility desire of elder women may make the existing problems more worse in china's women [44]. Study conducted in northern Ethiopia show that, women who had no formal education were 2.75 times more likely to develop adverse perinatal outcomes as compared to women who had secondary and above educational level (AOR 2.75, 95%, CI: 1.27, 5.95)[11]. A case control study done in Debre-Tabor town northern Ethiopia show that, women who had no formal education were 2 times more likely to develop adverse pregnancy outcomes as compared to those who have formal education (AOR= 2.15 95% CI: 1.41, 2.81) and women who complete primary education were 1.6 times more likely to develop adverse pregnancy outcome as compared to those who completed higher education (AOR = 1.6 95% CI: 1.06, 4.6) [37].

Residence: A case control study done in Debre-Tabor town northern Ethiopia show that, women who lived in rural areas were 2 times more likely to develop adverse pregnancy outcomes as compared to those who lived in urban resident (AOR= 1.51 95% CI: 1.03, 2.21) [37].

2.2.2. Maternity care service related factors

A case-control study done in Jimma University Specialized Hospital show that, women who attend ANC during pregnancy were 83% less likely to have adverse pregnancy outcome than women who didn't attend ANC follow up (AOR = 0.17 95% CI [0.06-0.49)[45].A similar institutional based cross sectional study done in Hawassa town southern Ethiopia show that, women who did not attend at ANC during pregnancy were 2 times more likely to have adverse pregnancy outcomes than those who had at least one ANC (AOR = 2.2, 95% CI: 1.1–4.3) and women who had poor preconception care were 3 times more likely to have adverse pregnancy outcomes as compared to those who had good preconception care [36]. An Institution based comparative cross-sectional study in southern Ethiopia show that, women who did not attend at ANC during pregnancy were 4 times more likely to have adverse pregnancy outcomes than those who had ANC follow-up (AOR = 3.902, 95% CI: 1.529–9.960) [43].

2.2.3. Previous and current medical illnesses

A case-control study done in Jimma University Specialized Hospital show that, women who had illness during current pregnancy were 7 times more likely to develop adverse pregnancy outcomes as compared to counterparts (AOR=7.22, 95%, CI: 1.65-31.58), Pregnant women who are anemic (hemoglobin level of less than 11 gram/dl) were 7 times more likely to have adverse pregnancy outcomes than non-anemic pregnant women (AOR=7.29 95%, CI: 2.85-18.67), women who had obstetric emergencies during current pregnancy were 18 times more likely to adverse pregnancy outcomes than healthy women (AOR=18.40 95%, CI: 6.12-55.37)[45]. An institutional based cross sectional study conducted in Hawassa town southern Ethiopia show that, women who had any chronic diseases before or during pregnancy were 2 times more likely to have adverse pregnancy outcomes than those who had no any chronic diseases (AOR = 2.2, 95% CI: 1.1–4.8) [36]

2.3. Conceptual framework

Conceptual frame work for this study which has been developed after the review of different literatures[1, 11, 15, 34, 37, 42].

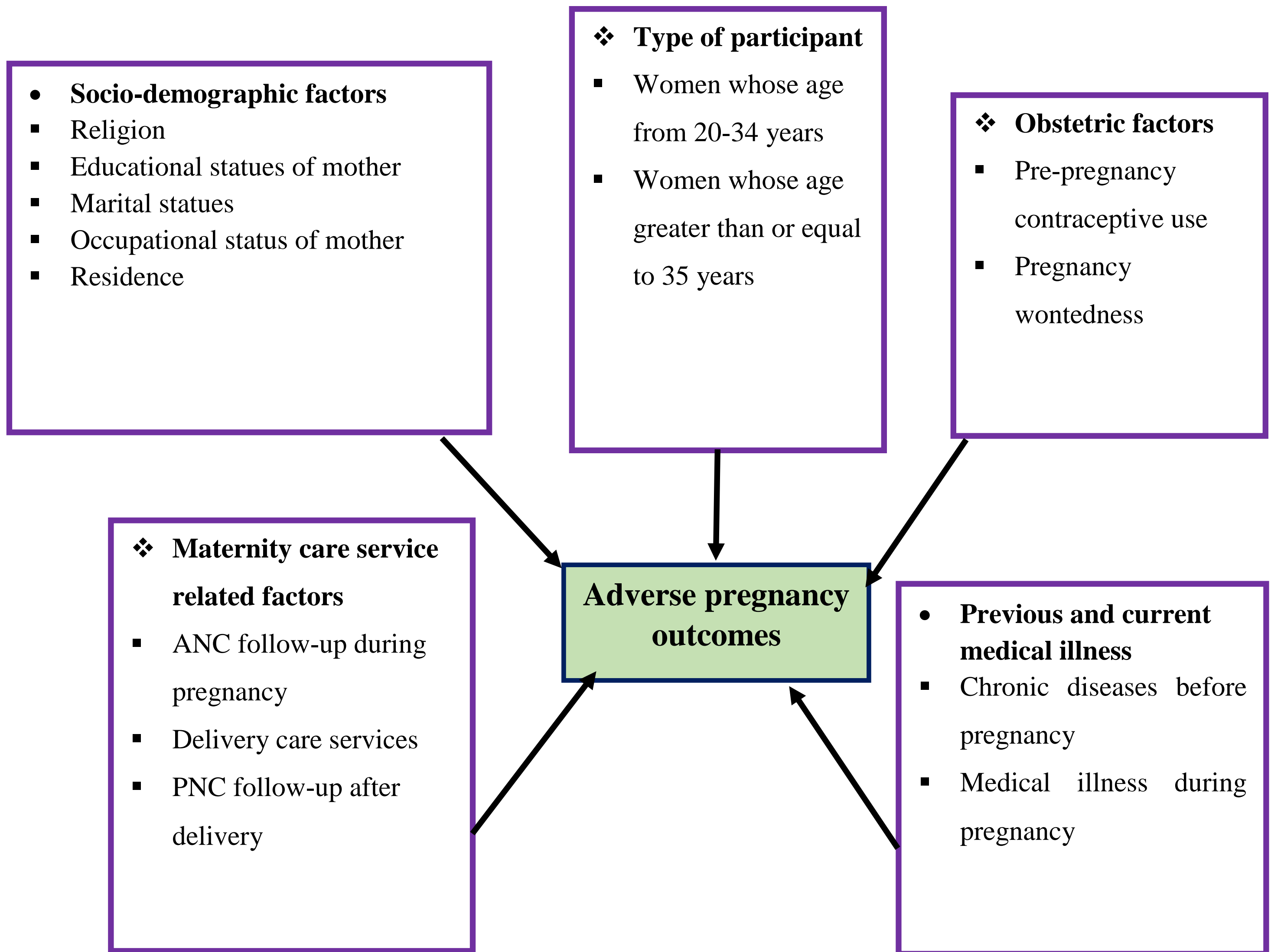

Figure 1: The conceptual framework to assess adverse pregnancy outcomes and its associated factors among advanced age primigravidae in gurage zone public hospitals, southern Ethiopia: a comparative cross-sectional study 2022.

3. Objectives of the Study

3.1. General objective

- To assess adverse pregnancy outcomes and its associated factors among advanced age primigravidae in gurage zone public hospitals, southern Ethiopia: a comparative cross-sectional study 2022.

3.2. Specific Objectives

- To determine adverse pregnancy outcomes among advanced age primigravidae in gurage zone public hospitals from April 27 to May27/2022.
- To identify factors associated with adverse pregnancy outcomes among advanced age primigravidae in gurage zone public hospitals from April 27 to May 27/2022.

4. Methods and Materials

4.1. Study Area

The study was conducted in gurage zone public hospitals. Gurageis one of the zonein south nation nationalities people region. It is organized by 16 districts and 5 town admirations. Gurage is bordered on the southeast by Hadiya and Yem special woreda, on the west, north and east by the Oromia Region, and on the southeast by Silt'e. Wolkite is the administrative center of Gurage zone, it is 158 km away from Adis Abeba, the capital city of the country. Based on the 2007 census conducted by the Central Statistical Agency of Ethiopia (CSA), Gurage zone has a total population of 5,343,430. There are six public hospitals in Gurage zone, which serving the total population in the zone. Four of the hospitals in the zone are primary hospitals, one general hospital and the remaining one is tertiary specialized teaching hospital. All hospitals provide comprehensive emergency obstetric care services for women and their children.

4.2. Study period

The study was conducted from April 27/2022 to May 27/2022 GC.

4.3. Study design

Retrospectivecomparativecross-sectional study design was conducted.

4.4. Populations

4.4.1. Source of population

- **For study group:**All charts of primigravidae women whose age ≥ 35 years that gave birth and received health service in gurage zone public hospitals.
- **For comparison group**: All charts of primigravidae women whose age between 20-34 years that gave birth and received health service in gurage zone public hospitals.

4.4.2. Study population

- **For study group:** All selected charts of primigravidae women whose age ≥ 35 years that giving birth and received health service in selected gurage zone public hospitals.

- **For comparison group**: All selected charts of primigravidae women whose age between 20-34 years that giving birth and received health service in selected gurage zone public hospitals.

4.5. Eligibility criteria

4.5.1. Inclusion criteria

- All charts of primigravidae women whose age ≥ 20 years that giving birth and received health service in selected gurage zone public hospitals.

4.5.2. Exclusion criteria

- Charts with no registration number is excluded
- Records with incomplete information that miss two or more variables is excluded
- Charts of teenage pregnancywhose age ≤ 19 years

4.6. Sample size determination

The sample size is determined byconsidering the overall prevalence of adverse perinatal outcome of both the study group and comparison group of 29.1% and 14.5% respectively study done in Awi zone public hospitals northwest Ethiopia [11]and it determined by using double population proportion formula by using the following assumption:

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

Where:

P_1 = 29.1% prevalence of adverseperinatal outcomes of study group (Elderly primigravidae age 35^{+} years).

P_2 = 14.5% prevalence of adverse perinatal outcomes of comparison group (young primigravidae age between 20-34 years).

95% confidence interval, 80% power, 1 ratio of study group to comparison group.

n - The desirable sample size of each group.

P_1- estimated population prevalence of adverse perinatal outcome in the study group.

P_2–estimated population prevalence of adverse perinatal outcome in the comparison groups.

Z (1–a/2) =the critical value at 95% level of significance (1.96).

Z (1–β) = 1- Power the value of 80% (0.84) (the probability that if the two proportions differ the

$$n(\text{each group}) = \frac{(p_1q_1 + p_2q_2)\left(Z1\frac{a}{2} + Z1 - \beta\right)^2}{(p1 - p2)^2}$$

test will produce a significant difference).

$$n = \frac{(0.291\times0.709+0.145\times0.855)\ (1.96+0.84)^2}{(0.291-0.145)^2} = \frac{0.206319 + 0.123975 \times 7.84}{0.021316} = \mathbf{122}$$

4.7. Sampling Technique and procedure

There are a total of 6 hospitals in gurage zone, namely Wolkite University Specialized referral Hospital, Butajira General Hospital, Gunchire Primary Hospital, Agena Primary Hospital, Buee Primary Hospital and Attat Primary Hospital. Among these 3 hospitals was selected randomly by lottery method for data collection.The calculated sample size was distributed with probability proportional allocation to size of population in each hospitals. Medical registered chart from April 30, 2020 to April 30, 2022, which fulfill inclusion criteria was reviewed. This study was done through a retrospective review of charts of all primigravidae mother who delivered at selected gurage zone public hospitals of both live and still births. Their Medical Record Numbers (MRN) recorded on the admission log books in the maternity ward was used for direction to select the maternal cards in card room, then we were count and selected only the prim-gravidae cards to review all the required information on the charts. The selected births by simple random sampling technique recorded from April 30, 2020 to April 30, 2022was reviewed. Simple random sampling technique of lottery method was used to select the required sample size.

Proportionate allocation of registration charts of Primi-gravidae women on adversepregnancyoutcomes in guragezone public hospitals,southern Ethiopia, 2022.

S/N	Name of hospitals	Number of delivery charts reported yearly of Primi-gravidae women	For two years reports were	Proportional allocation
1	Wolkite University Compressive Specialized hospital	800	800×2 = 1600	1600×244/3590 = **108**
2	Gunchire Primaryhospital	230	230×2 = 460	460×244/3590 = **32**
3	Attat Primaryhospital	765	765×2 = 1530	1530×244/3590= **104**
4	Total	**1795**	**3590**	**244**

4.8. Methods and Tools of Data Collection

A pretested and structured English version questionnaire was prepared by reviewing relevant literatures[1, 3, 15, 17, 34, 36].The data was collected by reviewing the clients chart record. For data collection process the 3 midwifery students (group members) were participated.The tool consists of socio-demographic factors, maternity care service related factors, previous and current medical illness and adverse pregnancy outcomes.

4.9. Variables

4.9.1. Dependent variable

Adverse pregnancy outcomes

4.9.2. Independent variables

Socio demographic variables

Age

Residence

Educational status

Marital statues

Occupation

Maternity care service related factors

ANC services utilization

Delivery care services

PNC services utilization

Obstetrics factors

Family planning service utilization

The status of pregnancy (planed or unplanned)

Previous and current medical illnesses

Chronic diseases before pregnancy

Illness during pregnancy

4.10. Operational and term definition

Teenage pregnancy: means any pregnancy of lady whose age between 10-19 years.

Elderly prim-gravidae: means women who are going to their first pregnancy at the age of 35 or older years[5,6].

Adverse pregnancy outcome means the occurrence of at least one of the obstetrical, maternal and/or perinatal complications[1-4].

4.11. Data quality control

To assure the data quality, group discussion was done among the data collectors of group members before the beginning of data collection about the objective and relevance of the study, confidentiality of information, pre-test and techniques of review of charts. Before going to data collection, pretest was done on 5% (12 samples, 6 for each group) to ensure the validity of the survey tool & to standardize the questionnaire. Each questionnaire was checked for completeness and missed values for the information that was collected every day; those incomplete questionnaires was managedaccordingly.

4.12. Data processing and analysis

The collected data was checked visually for its completeness and the response was coded and entered in into Statistical Package for Social Science (SPSS) version 25 for statistical analysis. Then the analyzed data was presented using text, tables and graphs. Chi-square test and

independent t-test was done to compare categorical and continuous variables accordingly. Bivariabl analysis was done to see the crude significant relation of each independent variables with dependent variable individually. Then Variables with P value at ≤ 0.25 during the Bivariabl analysis was entered to multivariable analysis to see the neat effect of each independent variable on the outcome variable. The degree of association between independent and dependent variables was assessed using adjusted odd ratio with 95% confidence interval. Finally the variables that have P-value less than 0.05 was considered as statistically significant.

4.13. Ethical consideration

Consent: Ethical approval of the research proposal was obtained from Wolkite University Health Science College midwifery department research committee and then formal letter was written by the midwifery departmentto the concerned office then submitted to gurage zone public hospitals director before beginning the data collection to get permission to conduct the study in the hospitals.

Confidentiality: All collected information was kept confidential, not linked to third party and confidentiality was maintained by omitting their name and personal identification except medical record number.

4.14. Dissemination of the result

The study result will be submitted and presented to Wolkite University College of Health science department of Midwifery and a copy of the result will be given to gurage zone public hospitals that the study was conducted. It was communicated to Wolkite University College of Health Science staff members and students through the university library.

5. Result

5.1. Socio-demographic characteristics

The study was conducted among a total of 244 women who participated in the study classified into a study group and a comparison group of 122 participants each with a response rate of 100%. The mean age of the study group and their comparison were 36±1.4 and 27± (3.6) years respectively. Regarding the residence of the respondents, the majority 75(61.5%) of the studygroup were rural resident **(Table 1)**

Table 1: Socio-demographic characteristics of the study participant among elderly primigravidae women in gurage zone public hospitals, southern Ethiopia 2022 (n=244).

		Maternal age		
Variables	Category	≥35 years N (%)	20-34 years N (%)	P-value
Age	Mean ±SD	36±(1.4)	27±(3.6)	0.000
Educational status	Can't read & write	6(4.9%)	1(0.8%)	0.140
	Can read & write	49(40.2%)	67(54.9%)	
	Primary education	14(11.5%)	21(17.2%)	
	Secondary	12(9.8%)	7(5.7%)	
	Collage & above	41(33.6%)	26(21.3%)	
Marital status	Married	51(41.8%)	119(97.5%)	0.000
	Divorced	34(27.9%)	2(1.6%)	
	Widowed	37(30.3%)	1(0.8%)	
Occupation	House wife	43(35.2%)	42(34.4%)	0.035
	Merchant	33(27.0%)	48(39.3%)	
	Employee	42(34.4%)	24(19.7%)	
	Student	1(0.8%)	5(4.1%)	

	Others	3(2.5%)	3(2.5%)	
Religion	Muslim	25(20.5%)	30(24.6%)	0.210
	Orthodox	45(36.8%)	35(28.7%)	
	Protestant	42(34.4%)	32(26.2%)	
	Catholic	10(8.2%)	25(20.5%)	
Residence	Rural	75(61.5%)	43(35.2%)	0.000
	Urban	47(38.5%)	79(64.8%)	

5.2 Maternity Health Care Service-Related Factors

Family planning utilization among the study group was 76(62.3%) while the comparison group was 19(15.6%). Regarding the pregnancy status of the respondents around half of 67(54.9%) of the study group and 108(89.3%) of comparison were planned. Among a total of 244 women, 157(64.3%) respondents have ANC follow-up; of which 44(36.1%) were from the study group and 113(92.6%) were from the comparison group. Concerning to mode of delivery of the respondents, 34(27.9%) and 60(49.2) of the study group had spontaneous vaginal delivery cesarean section respectively as compared to 54(44.3%) and 27 (22.1%) for the respective comparison group (Table 2).

Table 2: Maternity health care service-related factors among elderly primigravidae women who gave birth in the selected Gurage zone hospitals, southern Ethiopia, 2022(n=244).

		Maternal age		
Variables	Category	≥35 years N (%)	20-34 years N (%)	P-value
Family Planning utilization (n=244)	Yes	76(62.3%)	19(15.6%)	0.000
	No	46(37.7%)	103(84.4%)	
Pregnancy status (n=244)	Planned	67(54.9%)	108(89.3%)	0.000
	Unplanned	55(45.1%)	13(10.7%)	
Number of Px (n=244)	Singleton	110(90.2%)	121(99.2%)	0.002
	Twin	12(9.8%)	1(0.8%)	
ANC follow up	No	78(63.9%)	9(7.4%)	0.000
	Yes	44(36.1%)	113(92.6%)	

(n=244)				
Number of ANC visits(n=157)	<4	10(22.7%)	29(25.7%)	0.702
	≥4	34(77.3%)	84(74.3%)	
Gestational age when start ANC (n=157)	At 12-16 weeks	40(90.9%)	85(75.2%)	0.028
	>16 weeks	4(9.1%)	28(24.8%)	
folic acid taken during ANC (n=157)	No	1(2.3%)	0(0.0%)	0.108
	Yes	43(97.7%)	113(100.0%)	
TT vaccine taken during last pregnancy (n=157)	No	1(2.3%)	0(0.0%)	0.108
	Yes	43(97.7%)	113(100.0%)	
Urinalysis during ANC (n=157)	No	1(2.3%)	1(0.9%)	0.486
	Yes	43(97.7%)	112(99.1%)	
Medication taken during last pregnancy (n=244)	No	103 (84.3%)	120(98.4%)	0.000
	Yes	19(15.7%)	2(1.6%)	
PNC utilization (n=244)	No	3(2.5%)	3(2.5%)	1.000
	Yes	119(97.5%)	119(97.5%)	

Mode of delivery

Around half of the respondent 49.2% of study group were delivered by cesarean section, while one-third of the study group were spontaneous vaginal delivery (figure 2).

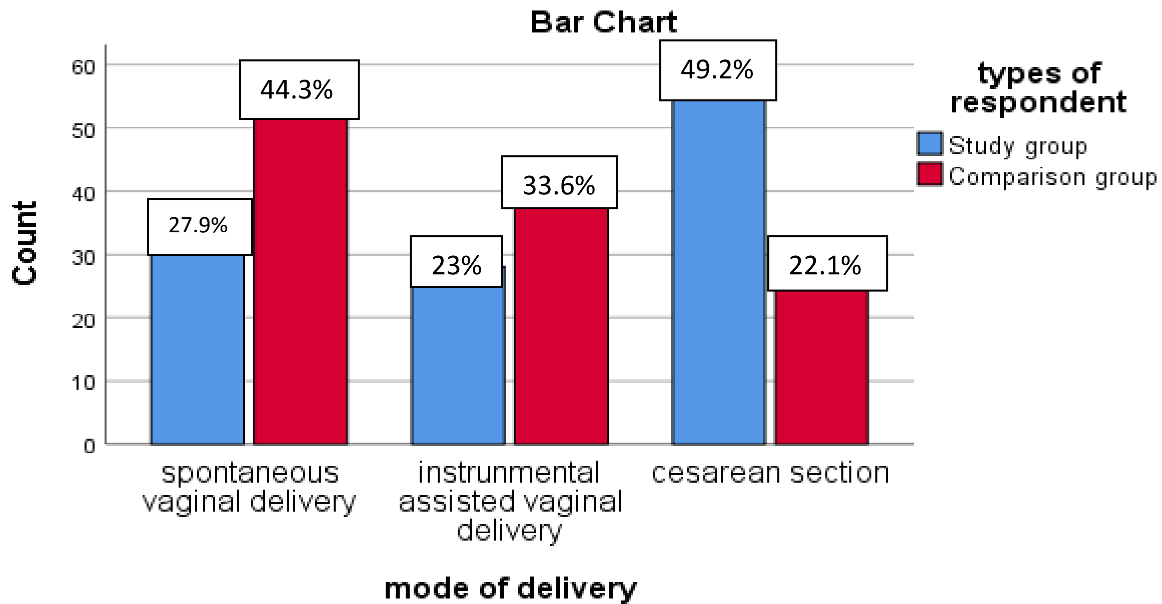

Figure 2. The proportion of mode of deliveryamong elderly primigravidae women in gurage zone public hospitals, southern Ethiopia 2022(n=244)

5.3. Magnitude of Previous and Current Medical Illness Among respondents

Among 244 women 30(12.3%) of them have pre-existing illnesses of which 24(19.7%) are from the study group and 6(4.9%) are from the comparison group. In addition, about 17(13.9%) of the respondents had last pregnancy illness. The majority of the respondents, 227 (93.0%) were screened for HIV and all of them were non-reactive (Table 5).

Table 3: Previous and current medical illnesses among elderly primigravidae women in gurage zone public hospitals, southern Ethiopia 2022(n=244).

		Maternal age		
Variables	Category	≥35 years N (%)	20-34years N (%)	p-value
Preexisting illness (n=244)	No	98(80.3%)	116(95.1%)	0.00
	Yes	24(19.7%)	6(4.9%)	
Type of medical illness	Anemia	10(38.5%)	1(16.7%)	0.561
	Malaria	4(15.4%)	2(33.3%)	

	Upper urinary tract infection	4(15.4%)	0(0.0%)	
	Chronic hypertension	5(19.2%)	2(33.3%)	
	Diabetes mellitus	3(11.5%)	1(16.7%)	
Illness during last pregnancy	No	106(86.9%)	121(99.2%)	0.00
	Yes	16(13.1%)	1(0.8%)	
HIV test status (n=244)	Not tested	5(4.1%)	12(9.8%)	0.078
	Counseled and tested	117(95.9%)	110(90.2%)	

5.4. Prevalence of Adverse Obstetrics and Maternal Outcomes among Respondents

The prevalence of adverse pregnancy outcomes among elderly primigravidae was 91(74.6%) with 95% CI: 66.5-83.7) While the younger primigravidae (comparison group) was 52(42.6%) with 95%CI: 66.5-83.7) (figure2)

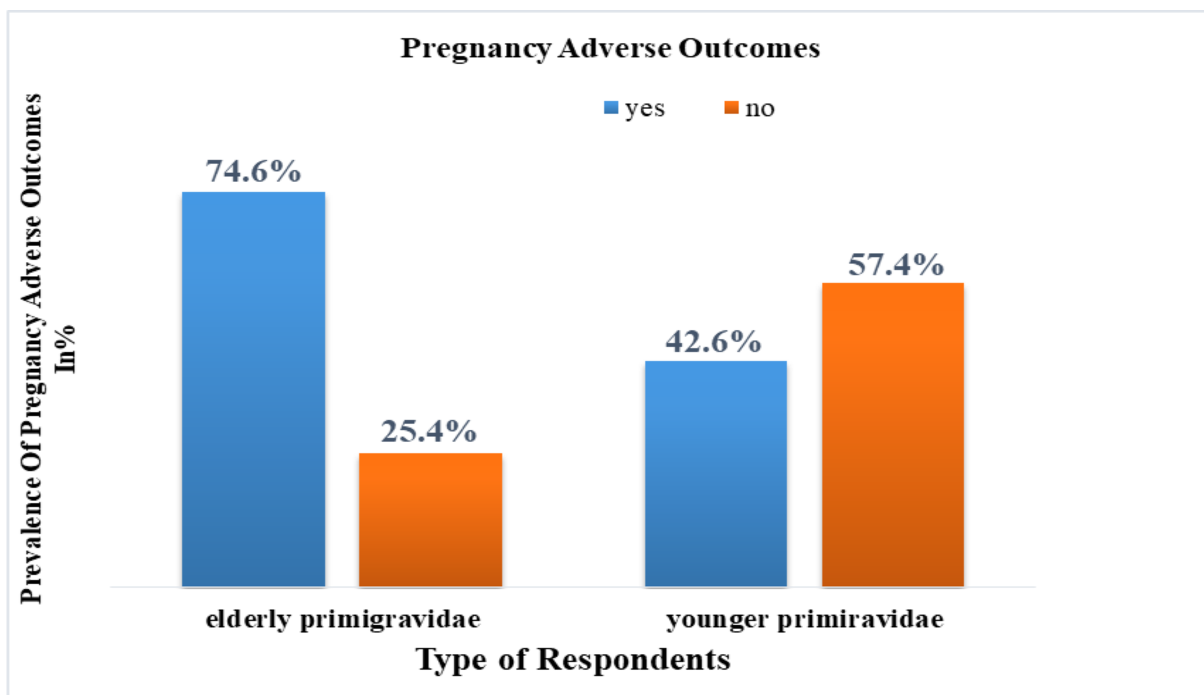

Figure 2: shows the prevalence of adverse pregnancy outcomes among elderly primigravidae women in gurage zone public hospitals, southern Ethiopia 2022 (n=244).

5.4.1 Magnitude of adverse obstetrics and maternal outcomes

The overall obstetrics and maternal adverse outcomes of this study was 55.7% (95%, CI: 49.6% - 62.6%), this study revealed that nearly half 63(51.6%) of the elderly primigravidae underwent cesarean section and that of younger primigravidae was 28(23.1%). Regarding obstructed labor, 26(21.3%) of the study group and 19(15.6%) of their comparison had prolonged/obstructed labor. About 22(18.0%) of elderly primigravidae had Malpresentations as compared to 15(12.3%) had Malpresentations among younger primigravidae. pregnancy-induced hypertension and postpartum hemorrhage covered 18(14.8%) and 14(11.5%) respectively among elderly primigravidae participants as compared to 2(1.6%) who had pregnancy-induced hypertension and 5(44.1%) had postpartum hemorrhage among younger primigravidae participants (Table4).

Table 4: Magnitude of adverse obstetrics and maternal outcomes among elderly and adult primigravidae women who gave birth at selected gurage zone hospitals, southern Ethiopia, 2022 (n=244).

		Maternal age		
Variables	Category	≥35 years N (%)	20-34 years N (%)	p-value
Antepartum hemorrhage (n=244)	No	101(82.8%)	120(98.4%)	0.000
	Yes	21(17.2%)	2(1.6%)	
Diabetes mellitus (n=244)	No	118(96.7%)	121(99.2%)	0.175
	Yes	4(3.3%)	1(0.8%)	
Premature rupture of membranes (n=244)	No	111(91.0%)	118(96.7%)	0.062
	Yes	11(9.0%)	4(3.3%)	
Malpresentations (n=244)	No	100(82.0%)	107(87.7%)	0.212
	Yes	22(18.0%)	15(12.3%)	
Pregnancy induced hypertension	No	104(85.2%)	120(98.4%)	0.000
	Yes	18(14.8%)	2(1.6%)	

Post-partum hemorrhage	No	108(88.5%)	117(95.9%)	0.032
	Yes	14(11.5%)	5(4.1%)	
Cesarean section	No	59(48.4%)	94(77.0%)	0.000
	Yes	63(51.6%)	28(23.0%)	
Amniotic fluid disorder	No	108(88.5%)	121(99.2%)	0.001
	Yes	14(11.5%)	1(0.8%)	
Perineal tear	No	102(83.6%)	104(85.2%)	0.724
	Yes	20(16.4%)	18(14.8%)	
Cephalopelvic disproportion	No	109(89.3%)	113(92.6%)	0.371
	Yes	13(10.7%)	9(7.4%)	
Prolonged /obstructed labor	No	96(78.7%)	103(84.4%)	0.248
	Yes	26(21.3%)	19(15.6%)	
Puerperal sepsis	No	117(95.9%)	122(100.0%)	0.024
	Yes	5(4.1%)	0(0.0%)	
Abortion	No	122(100%)	122(100%)	
	Yes	0	0	
Uterine rupture/POP	No	118()96.7%	122(100.0%)	0.044
	Yes	4(3.3%)	0(0.0%)	
Retained placenta	No	116(95.9%)	122(100.0%)	0.023
	Yes	5(4.1%)	0(0.0%)	
Cord prolapsed	No	120(98.4%)	121(99.2%)	0.561
	Yes	2(1.6%)	1(0.8%)	

5.4.2 Magnitude of adverse perinatal outcomes

The overall prevalence of perinatal adverse outcomes was 31% (95%, CI: 26.0% - 37.1%), there were 10(4.1%) perinatal deaths documented in this study 8(6.6%)of which were from study group and 2(1.6%) were from comparison group. There were 46(18.9%) perinatal NICU admission of which 34(27.9%) were from study group and 12(9.8%) from comparison groups. Fetal distress was recorded 30(24.6%) among elderly primigravidae and 19(15.6%) among younger primigravidae (Table5).

Table 5: Magnitude of adverse perinatal outcomes among elderly and adult women who gave birth at the selected gurage zone public hospitals, southern Ethiopia, 2022(n=244).

		Maternal age		
variables	Category	≥35 years N (%)	20-34 years N (%)	p-value
Perinatal death	Yes	8(6.6%)	2(1.6%)	0.053
	No	114(93.4%)	120(98.4%)	
Low birth weight	Yes	12(9.8%)	3(2.5%)	0.016
	No	110(90.2%)	119(97.5%)	
Fetal distress	Yes	30(24.6%)	19(15.6%)	0.079
	No	92(75.4%)	103(84.4%)	
NICU admission	Yes	34(27.9%)	12(9.8%)	0.000
	No	88(72.1%)	110(90.2%)	
First minute APGAR score<7	Yes	38(31.1%)	16(13.1%)	0.001
	No	84(68.9%)	106(86.9%)	
Five minute APGAR score<7	Yes	25(20.5%)	11(9.0%)	0.011
	No	97(79.5%)	111(91.0%)	
Preterm delivered baby	Yes	10(7.4%)	0(0.0%)	0.002
	No	112(92.6%)	122(100.0%)	
Congenital anomalies	Yes	3(2.5%)	1(0.8%)	0.313
	No	119(97.5%)	121(99.2%)	
IUGR	Yes	5(4.1%)	0(0.0%)	0.024
	No	117(95.9%)	122(100.0%)	

5.5. Factors Associated with Adverse Pregnancy Outcomes among Elderly Primigravidae

Among all participants, being elderly primigravidae were significantly associated with adversepregnancy outcomes using bivariate analysis (COR = 3.95, p>0.001) (Table 6).

Table 6: Relation of adverse pregnancy outcomes with that of types of respondant who gave birth at selected Gurage zone public hospitals, 2022 (n=244)

Variable	Category	Adverse outcomes		Bivariate analysis Odd ratio(CI)	p-value
		Yes	No		
Types of respondents	Elderly primigravidae	91 (74.6%)	31(25.4%)	3.95(2.30-6.80)	0.001
	Younger primigravidae	52(42.6%)	70(57.4%)	1	

Logistic regression of factors associated with adverse pregnancy outcomes was done for only study groups of elderly primigravidae women (≥ 35 years, n=122).So in binary logistic regression: residence, educational status, status of pregnancy, mode of delivery and illness during pregnancy were associated with adverse pregnancy outcomes of elderly primigravidae at p-value ≤ 0.25. However, in multivariable analysis only residence, status of pregnancy, and mode of delivery were significantly associated with adverse pregnancy outcomes of elderly primigravidae at p value < 0.05 (Table 9).

Table 7: Shows bivariabl and multivariable analysis of factors associated with adverse pregnancy outcomes among elderly primigravidae women in gurage zone public hospitals, southern Ethiopia, 2022.

Variable	Category	Adverse outcomes		Bivariate analysis (COR)	Multivariate analysis (AOR)	p-value
		Yes	No			
Educational status	Can't read and write	4(66.7%)	2(33.3%)	1	1	
	can read and write	35(66%)	18(34%)	0.97(0.16-5.82)	3.03(0.23- 39.71)	0.398

	Primary education	12(75%)	4(25%)	1.50(0.19-11.53)	0.99(0.06- 14.36)	0.997
	secondary	9(64.3%)	5(35.7%	0.90(0.12-6.77)	1.55(0.09- 24.59)	0.754
	College and above	31(93.9%)	2(6.1%)	7.75(0.84-71.31)	22.3(0.97- 510.7)	0.052
Residence	Rural	60(65.9%)	15(48.4%)	2.06(0.903- 4.72)	4.76(1.073-65.0)	0.040
	Urban	31(34.1%)	16(51.6%)	1	1	
Mode of delivery	SVD	17(18.7%)	23(74.2%)	0.03(0.007-0.15)	0.007(0.001-0.057)	0.000
	Instrumental	27(29.7%)	6(19.4%)	0.19(0.036-1.02)	0.165(0.02-0.1.17)	0.072
	CS	47(51.6%)	2(6.5%)	1	1	
Status of Px	planned	39(42.9%)	28(90.3%)	12.4(3.52-43.91)	0.023(0.003-0.175)	0.000
	unplanned	52(57.1%)	3(9.7%)	1	1	
Illness during Px	Yes	15(16.5%)	1(3.2%)	5.92(0.74-46.82)	0.37(0.019-7.297)	0.519
	No	76(83.5%)	30(96.8%)	1	1	

6. Discussion

6.1. Adverse pregnancy outcomes

Elderly primigravidae is the main factors that leads many obstetrics, maternal and perinatal adverse outcomes. Age is the important determinant factors of adverse birth outcomes, when the age of women increase the risk of adverse birth outcomes occurrence increases especially age increment with null parity the risk of adverse outcomes is double. Theoverall prevalence of adverse pregnancy outcomes results was 74.5% (95%; CI: 66.5%-83.7%) of study group and 42.6% of comparison group, which is higher than study conducted in northwest Ethiopia, The overall adverse pregnancy outcome among advanced age mothers and adult mothers was 64.6% and 37.8% respectively[1], in shashemene town southern Ethiopia, the study revealed that the prevalence of adverse pregnancy outcomes was 29.41% and 40.5% among mothers aged 20 to 34 and 35^{+} years respectively [43] and in Ayder hospitals north Ethiopia [46]. The discrepancies might be due to socio-demographic difference, study setting variation and also might be associated with the variation in the health care service accessibility. The difference also due to

parity that means the above studies including multiparty that consider only ages of women, but this study focus on both advanced ages and primigravidae women.

The overall the obstetrics and maternal adverse outcomes of this study was 55.7% (95%, CI: 49.6% - 62.6%), regarding obstetrics and maternal complication, this study show that a significant difference between elderly Primigravidae and younger Primigravidae regarding antepartum hermitage 21(17.2%) versus 3(2.5%), pregnancy induced hypertension 18(14.8%) versus 2(1.6%) this study supported by study conducted in Egypt show thaw that, there was a significant difference between elderly Primigravidae and younger Primigravidae regarding pre-eclampsia (20.3% versus 7.2%, respectively [9]. This might be pregnancy induced hypertension increase due to age increment. About cesarean section 63(51.6%) elderly Primigravidae while 28(23.0%) in younger Primigravidae, this supported by study conducted in Egypt described that there was a significant difference between elderly primigravidae and younger primigravidae of caesarean section rate, which was higher among the study group 77.6 % and comparison group 24.6% [9]. postpartum hemorrhage 14(11.5%) versus 5(4.1%)and amniotic fluid disorder 14(11.5%) versus 1(0.8%) of complications of elderly Primigravidae and younger Primigravidae respectively.

The overall the perinatal adverse outcomes was 31% (95%, CI: 26.0% - 37.1%), this study is higher than study conducted in Awi zone, northernEthiopia 19.4%[11]. There is a significant difference between elderly primigravidae and young primigravidaeof perinatal adverse outcomes, NICU admission 34(27.9%) versus 12(9.8%) respectively and the other perinatal adverse outcomes that has a significant difference between the study and comparison group are low birth weight 12(9.8%) versus 3(2.5%), first minute Apgar score <7 38(31.1%) versus 16(13.1%) and five minute Apgar score < 7 25(20.5%) versus 11(9.8%).

6.2. Factors associated with adverse pregnancy outcomes

Women who lived in rural resident were 5 times more likely risk or develop adverse pregnancy outcomes as compared to those who lived in urban resident[AOR: 4.76 95%; CI: 1.073 – 65.00]. This finding is supported by the finding conducted in Debre-Tabor town, northwest, Ethiopia[37]. This could be explained by the fact thatwomen who lived in rural resident were lack of awareness and information about the existence of maternity health care services like ANC, delivery care and PNC to be received in free services. Rural residents lack accessibility of

infrastructure like accessibility of transportation and better roads and there might bea difference in the availability of health care workers and health care providing materials among urban and rural. This indicated that rural residence are disadvantaged in terms of availability of health care providing materials and accessibility of health care professionals than urban residence[47]. Women who lived in rural residence are lack of media exposure, they affected by cultural barriers and they have no chance to be educate, lack of autonomy of decision making power, since most of rural resident far from health institution, women face for the second delay to reach health facility due to long distance, due to the above reason rural resident is risk for the occurrence of adverse pregnancy outcomes.

Women who gave birth by spontaneous vaginal delivery were prevent the existence of adverse pregnancy outcomes by 99% as compared to those who delivered by cesarean section (AOR: 0.007, 95%; CI: 0.001-0.057). This finding is supported by the study done in shashemene town, southern Ethiopia [43]. This could be explained by the fact that when women delivered by cesarean section, there is incision of abdomen and uterus, long stay of hospital, this risk for puerperal sepsis, wound site infection and risk for uterine rupture for next pregnancy try of labor as compared to spontaneous vaginal delivery, these are some of the adverse pregnancy outcomes.

Women who become pregnant after preparation and planning can reduce the risk of the existence of adverse pregnancy outcomes by 97% as compared to those become pregnant without any preparation and planned (AOR: 0.023, 95%; CI: 0.003-0.175). This can be explained the fact that when women become pregnant without preparation, they do not care for her pregnancy, most unplanned ends by abortion especially induced abortion, globally around 121 million unplanned pregnancy was occurred among these 61% of pregnancies ended in abortions each year [48]. So induced abortion and its complication is one of the adverse pregnancy outcomes.

7. Limitation of the Study

As it is cross sectional study, it is difficult to make inferring causal association.

Due to not telling their exact age it was difficult to get the needed sample size.

8. Conclusion and Recommendations

8.1. Conclusion

The prevalence of adverse pregnancy outcomes in this study is higher as compared to other literatures. Adverse pregnancy outcome is higher in advanced maternal age than young age, so age and parity is important determinant factors of adverse birth outcomes. Rural resident were positively significantly associated with adverse pregnancy outcomes, while planned pregnancy and spontaneous vagina mode of delivery were protective factors that significantly associated with adverse pregnancy outcomes.

8.2. Recommendation

Health providers and health extension workers better:

to counsel and provide appropriate ANC follow up.

to council the mother on mode of delivery.

to creat awareness on the adverse outcomes of elderly primigravidae and advantage of young age marriage and having pregnancy early.

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9. Annex

Annex I: English version questionnaire

Questionnaire No. ___________

Name of interviewer: ____

Date: _____________________________

Name of health facility _______________________________________

Part I: socio- demographic characteristics

S/no	Questions	Answers/choices
1	The age of mother	____________complete years
2	The religion of woman	1. Muslim 2. Orthodox 3. Protestant 4. Catholic 5. Others (Specify)_____________
4	The marital status of woman	1. Single 2. Married 3. Divorced 4. Widowed
5	The educational status of women	1. Illiterate 2. Can read and write 3. Primary education 4. Secondary education 5. College and above
6	The occupation of woman	1. House wife 2. Merchant 3. Government/private employee 4. Student 5. Other specify _____________

7	Residence	1. Rural 2. Urban

Part II: Maternity care service related factors

8	Was women utilization Pre-pregnancy contraception (any modern methods)	1. No 2. Yes
9	Pregnancy status	1. Planned 2. Unplanned
10	Number of pregnancy	1. Singleton 2. Twin and high order of pregnancy
11	Did women receive ANC during pregnancy	1. No**(if no jump to question number 17)** 2. Yes
12	Number of ANC Visits	1. less than four 2. four and above
13	Gestational age when start ANC	1. at 12-16 weeks 2. > 16 weeks
14	Did women take iron folic acid during antenatal care	1. No 2. Yes
15	Did women received TT vaccine during current pregnancy?	1. No 2. Yes
16	Was urine analysis performed during ANC?	1. No 2. Yes
17	Any Medication taken during current pregnancy	1. No 2. Yes
18	Where women delivered her child?	1. Home 2. Health institution
19	mode of delivery	1. Spontaneous vaginal delivery 2. Instrumental assisted vaginal delivery 3. Cesarean section
20	Did women received PNC after delivery	1. No

		2. Yes

Part III: previous and current medical illnesses

21	Is there pre-existing medical illness?	1. No 2. Yes
22	Type of medical illness	1. Anemia 2. Malaria 3. Upper urinary tract infection 4. Chronic hypertension 5. Diabetes mellitus 6. Others (specify) ___________________
23	Is there any illnesses/complications during current pregnancy?	No Yes
24	HIV test status	1. Not tested 2. Counseled and tested
25	If tested, result	1. Non-reactive 2. Reactive

Part IV: Adverse obstetrics and maternal outcomesamong elderly primigravidae

26	Antepartum hemorrhage	1. No 2. Yes
27	Diabetes mellitus	1. No 2. Yes
28	Premature Rupture of Membranes	1. No 2. Yes
29	Malpresentations	1. No 2. Yes
30	Pregnancy induced hypertension	1. No 2. Yes
31	Post-partum hemorrhage	1. No 2. Yes
32	Cesarean section	1. No 2. Yes
33	Amniotic fluid disorder	1. No 2. Yes
34	Perineal Tear	1. No 2. Yes
35	Cephalopelvic Disproportion	1. No

		2. Yes
36	Prolonged/obstructed labor	1. No 2. Yes
37	Puerperal sepsis	1. No 2. Yes
38	Abortion	1. No 2. Yes
39	Uterine rupture/inversion	1. No 2. Yes
40	Retained Placenta	1. No 2. Yes
41	Cord prolapse	1. No 2. Yes

Part V: Adverse perinatal outcomes among elderly primigravidae

42	Perinatal death	1. No 2. Yes
43	low birth weight	1. No 2. Yes
44	Fetal distress	1. No 2. Yes
45	NICU admission	1. No 2. Yes
46	First minute Apgar < 7	1. No 2. Yes
47	5 minute APGAR score <7	1. No 2. Yes
48	Preterm delivered baby	1. No 2. Yes
49	Congenital Anomalies	1. No 2. Yes
50	Intra uterine growth restriction	1. No 2. Yes