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Birth Outcomes of Twin's Pregnancy and Associated Factors in Selected Public Hospitals of Addis Ababa, Ethiopia, 2022

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Abstract

Background: *Twin birth is a type of multiple births when the mother gives birth to two offspring from the same pregnancy. The prevalence rates range from less than 8 twin pregnancies per 1,000 births in the East and Southern Asia, India, and Oceania to 17 or more per 1,000 births in Africa. There are factors to increase the negative birth outcome of twin delivery; from these, some of them are associated with increased maternal age, prim parity, low birth weight, chronic disease, low ANC follow-up, and PROM. Adverse birth outcome for twin delivery is a critical health issue in developing countries such as Ethiopia. It resulted in many bad consequences, neonatal and infant morbidity and mortality.*

Objective: *The objective of this study was to assess birth out come and associated factors of twin's pregnancy in selected public Hospitals, Addis Ababa, Ethiopia.*

Methods: *Facility based cross sectional study was conducted on 246 maternal records of twin delivery in selected public hospitals of Addis Ababa to assess birth out come and associated factors of twin's pregnancy from December, 2020-June, 2021.A pretested questionnaire which will be analyzed by SPSS and result will be reported in tables, bivariate and multivariate regression will be done to show correlations by Crude and adjusted odds ratio. A confidence limit of 95% and p- value less than 0.05 will be used as cut of point to see presence of statistical significance.*

Result: *The prevalence of adverse birth outcome (Both maternal and fetal) among twin delivery in the three selected public hospitals of Addis Ababa is 234 (95%). majority, 156(63.4%) were in the age group 18-28 years, with the mean age of 29.78 and Standard deviation of±6.53.Most of the mothers 227(92%) were married. Mothers who had Pregnancy induced hypertension (AOR= 10.465, 95% CI (2.922-37.474)), Mothers who had ruptured membrane before the onset of Labor (AOR= 3.577, 95% CI (1.198-10.682)) and Mothers who labor for more than 12 hours were (AOR= 3.324, 95% CI (1.101-10.034)) were significantly associated with adverse maternal birth outcome. While mothers who had ANC follow up at private clinic (AOR= 0.252, 95% CI (0.098-0.649)) and Mothers who live outside Addis Ababa were unlikely to have adverse fetal outcome (AOR= 0.343, 95% CI (0.143-0.826)).*

Conclusion: *Adverse birth outcome of Twins pregnancy is relatively higher when compared to similar studies conducted in Ethiopia. The Health facilities should have effective risk assessment in Antenatal care unit and labor ward. It is also recommended to have guidelines and protocols for the management of twin's pregnancy. Since the Prevalence of Adverse twin's Birth outcome is higher greater attention should be given on both Antepartum and Intrapartum care.*

Keywords: Birth Outcome, Pregnancy, Twin Birth, Ethiopia.

Abbreviations

AA: Addis Ababa
APH: Ante partum Hemorrhage
ANC: Ante natal care
CS: Caesarean section
CI: Confidence Interval
EDHS: Ethiopian Demographic and Health survey
ETB: Ethiopian Birr
FHB: Fetal heart beat
GMH: Gandhi Memorial Hospital
LBW: Low birth weight
OR: odds ratio
PIH: Pregnancy induced Hypertension
PROM: Premature rapture of membrane
SVD: Spontaneous vertex delivery
WHO: World Health Organization
ART: Assisted Reproductive Technology

1. Introduction

1.1 Background

Twin birth is a type of multiple births when the mother gives birth to two offspring from the same pregnancy [1]. Twin pregnancy can be either dizygotic or monozygotic. Dizygotic or fraternal twins usually results from the fertilization of two separate ova while monozygotic or identical twin arises from a single fertilized ovum. Dizygotic (Fraternal also known as non-identical twins) develops from two different ova and sperm cells. Dizygotic twins do not share a placenta or amniotic sac, and their faces are not as similar as identical twins' appearances [1,2].

Twin pregnancies account for 2 to 4% of the total number of births. Spontaneous twin pregnancy rates vary worldwide. The prevalence rate ranges from less than 8 twin pregnancies per 1,000 births in the East and Southern Asia, India, and Oceania to 17 or more per 1,000 births in Africa [3]. The highest rates of twin pregnancies are found in Nigeria and the lowest rates occur in Japan. This difference is mainly due to dizygotic twin pregnancies, since the prevalence of monozygotic pregnancies is practically constant, ranging from 3.5 to 4 per 1,000 births [4].

Dizygotic twinning is much more common than monozygous splitting of a single oocyte. The frequency of monozygotic twin births is relatively common worldwide, approximately one set per 250 births [5]. This incidence is generally independent of race, hereditary, age and parity. By contrast the incidence of dizygotic twinning is influenced by race, heredity, maternal age, parity, and fertility treatment [6].

Advanced maternal age has been associated with increased incidence of twinning. When a woman gives birth to twins after the age of 35, there is a higher chance of bearing twins. That is because as the woman gets older, there is a high tendency to release more than one ovum when ovulating due to increased gonadotropins [7].

A dizygotic twin descends from the mother's side. If a woman has a mother or grandmother who is dizygotic twin, the odds of having dizygotic twin is higher. In addition a woman who had previous twin's pregnancy will have greater chance of having twins. This means the reproductive system works well and ovulation is not problematic, so the possibility of producing more than one ovum when ovulating is higher [4,7].

Incidence of twin pregnancy is increasing all over the world because of Assisted Reproductive Technology (ART).Multiple gestation rates are high in assisted reproductive treatment cycles because of the perceived need to stimulate excess follicles and transfer excess embryos to achieve reasonable pregnancy rates [8]. In vitro fertilization (IVF) can lead to a multiple pregnancy if more than one embryo is transferred to the uterus. Identical multiples also may result if the fertilized egg splits after the transfer of embryo.

2. Methods and Materials

2.1 Study Design and Period

Facility based cross sectional study was conducted to assess birth out come and associated factors of twin pregnancy from April, 2020-June, 2021.

2.2 Study Area

The study was done in Gandhi memorial hospital, Zewditu memorial hospital and Ras Desta hospital Addis Ababa, Ethiopia, as of 2015 Addis Ababa city had 3.238 million inhabitants with male to female ratio of 0.99.Currently the city Administration has 06 public hospitals, 25 private hospitals, more than 97 health centers and about 500 clinics according to EDHS 2016.Gandhi Memorial Hospital, Zewditu memorial hospital and Ras Desta hospital are some of the hospitals that are capable in providing comprehensive care to pregnant women, labor and delivery services including critical maternal and neonatal care. The hospitals serve 21, 16 and 15 Catchment Health centers respectively.

2.3 Population

2.3.1 Source Population

The source population of this study was all twin delivery records of selected public hospitals of Addis Ababa with in the period of December, 2020-June, 2021.

2.3.2 Study Population

The study population of this study was all twin delivery recorded in delivery record from December, 2020- June, 2021 and fulfilled the eligibility criteria.

2.4 Study Participants

2.4.1 Inclusion Criteria

All twin delivery records of selected public hospitals of Addis Ababa during the study period that have a gestational age of 28 weeks or more and At least one of the new born weighs 1000 grams or more.

2.4.2 Exclusion Criteria

Twin delivery records that have incomplete recorded information on the delivery register was excluded from this study.

3. Sample Size Determination and Sampling Technique

Sample size required for this study was calculated using formula for a single population proportion by taking proportion rate of 20% of adverse twin birth outcome rate, 95% level of significance and 5% margin of error or precision. Sample size was determined using the following formula [9]:

$$n = \frac{(z\alpha/2)^2 P(1-P)}{d^2} = \frac{(1.96)^2 * 0.2(1-0.2)}{0.05^2} = \mathbf{246}$$

Where:

P=20% (proportion of birth outcome)

Zα/2= critical value at 95% confidence level of certainty (1.96)

D= the margin of error between the sample and the population or desired precision (5%)

n= sample size

3.1 Sampling Procedure

Under Addis Ababa City administration there are a total of 06 hospitals. Among them Gandhi Memorial Hospital, Zewditu Memorial Hospital and Ras Desta Hospital was selected by purposive sampling method based on their delivery load and the sample size was allocated proportionally based on the average delivery load of the hospitals in the past three months.

A total of 11816 deliveries were there at the selected public hospitals during the study period. From the total number of deliveries, 5303 of them were from Gandhi Memorial Hospital; out of which 149 were twin deliveries, 3952 deliveries of them from Ras Desta Hospital; out of which 120 were twin deliveries and the rest 2561 of them from Zewditu Memorial Hospital; out of which 101 are twin deliveries.

The sample size is allocated proportionally for each hospital. Twin charts will be selected from each hospital using a simple random sampling method. Since the number of twin deliveries is different for each hospital, proportion for each hospital has been calculated using the formula below

Total Number of twin deliveries at selected Public hospitals = **370**		
GMH = 149	**Ras Desta = 129**	**ZMH = 101**
Simple random Sampling		
GMH = 99 (Gandi memorial hospital)	**Ras Desta hospital= 80**	**ZMH = 67 (Zweditu memorial hospital)**
Total calculated sample size = **246**		

3.2 Data Collection Procedures and Tools

Data were collected by reviewing the charts of twin's delivery during the data collection period. The data collectors were midwives from Gandhi Memorial Hospital, Zewditu Memorial Hospital and Ras Desta Hospital. Structured checklist was developed after reviewing relevant literatures. The checklist was designed to obtain relevant information on the predictor variables such as demographic, obstetric, maternal complication, intervention, and component of modified WHO Partograph. The conditions of the baby such as Apgar score was assessed and Apgar score of 7 was

considered as satisfactory [24]. The questionnaire was developed in English and later translated in to Amharic, the local language of the city and consistency and accuracy check was done to ensure proper and correct translation of the questions by back translation to English.

3.2.1 Study Variables

Dependent Variables

• Birth outcome of Twins pregnancy

Independent Variables

• Maternal Demographic Factors: Age, religion, marital status and residence.
• Obstetric Factors: Includes Gravidity, Parity, Number of Prior Twins Pregnancy
• Ante partum related Factors: Includes Number of ANC Visits Obstetric and Medical Complications During Labor.
• Intrapartum related Factors- mode of delivery, gestational age at onset of labour,
• Apgar score, Birth weight and sex of the new born

3.2.2 Operational Definitions

Twins birth: a type of multiple births when the mother gives birth to two offspring from the same pregnancy [1].

Birth outcome: Includes both maternal and fetal outcome [10].

Normal maternal outcome: mothers who had normal birth outcome without complications like hypertension, preterm delivery, traumatized labour/tear, C/S delivery, ICU admission, Polyhydraminos, hypothyroidisms and maternal death [10].

Adverse maternal birth outcome: mothers who had at least one of the following complications like preterm deliveries, PIH, birth injury/tear, C/S delivery, instrumental delivery, ICU admission, Polyhydraminos, hypothyroidisms, maternal death [10].

Normal Fetal outcome: fetal/neonatal outcomes without the following complications (preterm, RDS, LBW, macrosomia, poor Apgar score, birth injury, birth defect, IUFD, still birth, admission to the neonatal intensive care unit [10].

Adverse Fetal Outcome: refers to neonates who had at least one of the following adverse complications (preterm, RDS, LBW, macrosomia, poor Apgar score, birth injury, birth defect, IUFD, still birth, admission to the neonatal intensive care unit.

Good Apgar Score: refers to when Apgar score is greater than seven at 5min of birth [11].

Poor Apgar Score: refers to when Apgar score is less than seven at 5min of birth [11].

Data Entry and Analysis

After data collection, each questionnaire was checked for completeness based on the code given during data collection. The collected data was entered to Epi Data 4.2 software which secured further data quality by reducing errors made while data entry. Then entered data was transported to SPSS version 25.0 for data analysis. Descriptive statistics like frequency tables, graphs and descriptive summaries was used to describe the independent variables. Those factors found with their P value < 0.20 in the bi-variable logistic regression model were fitted in to the multivariable logistic regression model to control the effect of confounding variables. Multivariable analysis using standard logistic regression technique was done to evaluate the independent effect of each covariate on birth outcome of twin's pregnancy. A confidence limit of 95% and p- value less than 0.05 was used as a cut of point to see presence of statistical significance. To control the effect of confounding variables stepwise multiple logistic regression analysis was done. The Hosmer- Lemeshow statistic had significant value of 0.65 which shows that the model was fit.

4. Result

4.1 Socio-Demographic Characteristics

There were a total of 11,816 deliveries in Gandhi Memorial Hospital, Zewditu Memorial Hospital and Ras Desta Hospital from December 2020- June 2021.Out of those deliveries 370 of them were twin deliveries. Among the total twin deliveries 246 maternal charts that had complete records were reviewed in the study.

Majority, 156(63.4%) were in the age group 18-28 years, with the mean age of 27.3 and Standard deviation of±4.29.Most of the mothers 227(92%) were married. From the total records one quarter (25%) resides in rural area.

Variable	Category	Frequency	Percent (%)
Sex of fetus	Male and Male	82	33.3%
	Female and Female	75	30.5%
	Male and Female	89	36.2%
Age in year	18-28	156	63.4%
	29-39	86	35%
	40-50	4	1.6%

Marital status	Single	15	6%
	Married	227	92.2%
	Divorced	04	1.8%
Residence	Addis Ababa	184	74.8%
	Outside Addis Ababa	62	25.2%

Table 1: Frequency distribution of participant Socio-demographic variables in Selected public hospitals of Addis Ababa, Ethiopia, 2022 (n=246).

4.2 Obstetric Variables

In this study 174(70.7%) of the mothers were Multi gravid and 93 (37.8%) of the mothers were Nulliparous. All of the mothers (246) in this study had no prior history of twins pregnancy while 32 (13%) have prior history of twins pregnancy.

Variable	Category	Frequency	Percent (%)
Gravidity	Primigravida	72	29.3%
	Multi gravid	174	70.7%
Parity	Nulliparous	93	37.8%
	Primiparous	74	30.1%
	Multiparous	79	32.1%

Table2: Frequency distribution of participants Obstetric variables in Selected public hospitals of Addis Ababa, Ethiopia, 2022 (n=246).

4.3 Ante-Partum Related Variables

About 232 (94.3%) mothers in this study had ANC follow up. Among the mothers who had ANC follow up 154 (62.6%) of the mothers had ANC follow up in the respective public Hospitals and 121 (52.1%) Start their ANC follow up in less than three months of gestation. Among the mothers in this study 101 (41.1%) had prior obstetric complication while 10(4.1%)had prior medical history before delivery.

Variable	Category	Frequency	Percent (%)
ANC follow up	Yes	232	94.3%
	No	14	5.7%
Place of ANC visit	Health Center	71	30.6%
	Private Hospital	07	3%
	Governmental Hospital	154	66.4%
GA at first ANC visit	< 3 months	121	52.1%
	>3 months	111	47.9%

Table 3: Frequency distribution of participants Antepartum variables in Selected public hospitals of Addis Ababa, Ethiopia, 2022 (n=246).

4.4 Prevalence of Adverse Birth Outcome

Among the 246 participants 214 (86.9%) have adverse maternal birth outcome while 32 (13.1%) have good maternal outcome while Out of 246, 185(75.2%) have adverse fetal birth outcome while 61(24.8%) has good fetal birth outcome.

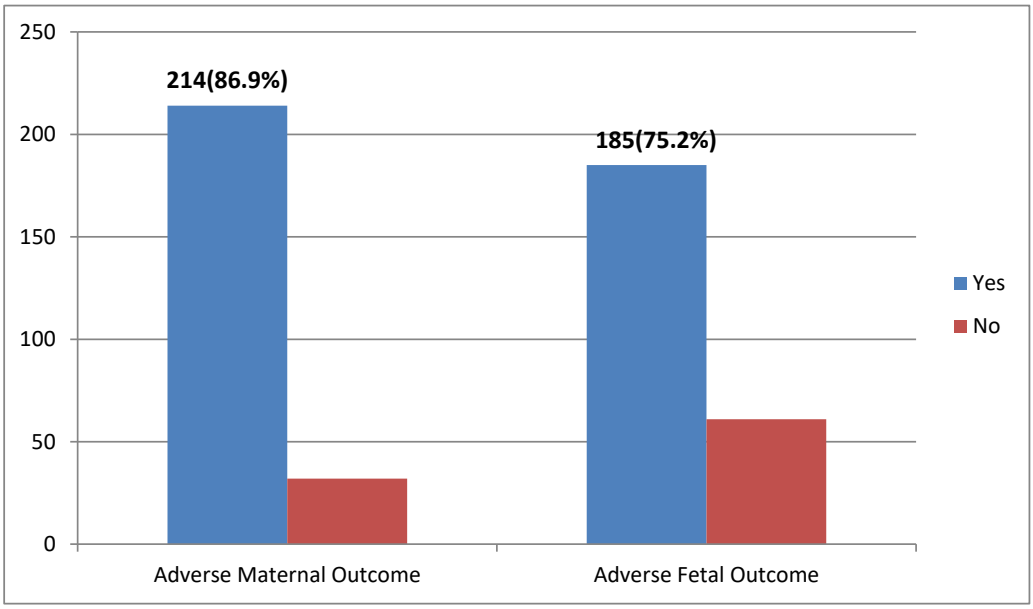

Figure 1: Shows prevalence of adverse birth outcome among women who had Twins delivery in selected public hospitals of Addis Ababa

4.5 Factors Associated with Adverse Birth Outcome

Bi-variable analysis result showed that Maternal age, Marital status, Gravidity, Parity, Presence of ANC follow up, Place of ANC visit, Number of ANC visit, Obstetric complication before delivery, Membrane status and GA during labor, Duration of labor were significantly associated with adverse maternal birth outcome while Age of the mother, Marital status, Residence Gravidity, Parity, Prior abortion, Place of ANC visit, Number of ANC visit, GA during labor were significantly associated with adverse fetal birth outcome.

In multivariable analysis Obstetric complication before delivery, Membrane status during labor and Duration of labor were identified to be significantly associated with adverse maternal birth outcome while Marital status and GA during Labor were significantly associated with Adverse fetal birth outcome.

Mothers who had Pregnancy induced hypertension were (AOR= 10.465,95% CI(2.922-37.474)) ten times more likely to develop adverse Maternal birth outcome compared to mothers who had no Pregnancy induced hypertension . Mothers who had ruptured membrane before the onset of Labor were three times more likely to develop adverse maternal birth outcome as compared to mothers who had intact membrane before onset of labor. (AOR= 3.577, 95% CI (1.198-10.682)). Mothers who labor for more than 12 hours were (AOR= 3.324, 95% CI (1.101-10.034)) more likely to develop adverse maternal birth outcome.

Mothers who had ANC follow up at private clinic were less likely to have adverse fetal birth outcome than that of mothers who had ANC follow up at Health center and Governmental hospital. (AOR= 0.252, 95% CI (0.098-0.649)). Mothers who live outside Addis Ababa were unlikely to have adverse fetal out come as compared to mothers who resides in Addis Ababa.(AOR= 0.343, 95% CI (0.143-0.826)).(Table 6)

Variable	Category	Frequency	Percent (%)
First twin fetal presentation	Cephalic	164	66.7%
	Breech	80	32.5%
	Others	02	0.8%
GA during labor	28-32	33	13.4%
	33-37	72	29.3%
	>37	141	57.3%
Membrane status	Intact	143	58.1%
	Ruptured	103	41.9%

Duration of labor	< 12 hours	184	74.8%
	>12 hours	62	25.2%
Partograph Utilization	Yes	56	22.8%
	No	129	52.4%
	Not applicable	61	24.8%
Mode of delivery	SVD	101	41.1%
	C/S	139	56.5%
	Both	06	2.4%
Delivery Outcome	Both alive	226	91.9%
	One still born and one alive	14	5.7%
	Both still born	06	2.4%
Birth weight	Both NBW	68	27.6%
	Both LBW	133	54.1%
	One NBW and LBW	45	18.3%

Table 4: Frequency distribution of participants Intrapartum variables in Selected public hospitals of Addis Ababa, Ethiopia, 2021 (n=246).

Adverse Maternal Birth out come			
Variable	**Category**	**Frequency**	**Percent**
Preterm Delivery	Yes NO	105 141	42.6% 57.4%
C/S + Instrumental delivery	Yes NO	145 101	58.95% 41.05%
Oligohydraminos + Polyhydraminos	Yes NO	14 232	5.7% 94.3%
Maternal Admission to ICU	Yes NO	06 240	2.4% 97.6%

Adverse Fetal Birth out come			
Variables	**Category**	**Frequency**	**Percent**
Preterm	Yes NO	105 141	42.6% 57.4%
Low birth weight	Yes NO	178 68	72.4% 27.6%
Poor APGAR score	Yes NO	39 207	15.8% 84.1%
Still birth	Yes NO	20 226	8.2% 91.8%
Birth Defect	Yes No	02 244	0.8% 99.2%
Neonatal Admission to NICU	Yes NO	146 94	60.8% 39.2%

Table 5: Patterns of Adverse birth out come in selected public hospitals of Addis Ababa, Ethiopia 2022 (n=246)

Variables	Category	Adverse maternal birth outcome		COR (95%CI)	AOR (95%CI)	P- Value
		Yes	NO			
Marital Status of mother	Single Married Widowed	17 195 02	02 28 02	2.488 [0.587-10.538]	1 0.772[0.112-5.319] 721	1 0.793 0
Age	18-28 29-39 40-50	137 73 04	19 13 0	1.107[0.547-2.242]	1 0.528[0.151-1.852] 0.00	1 0.319 0.999
Gravidity	PG MG	66 148	66 148	1.932[0.759-4.197]	1 5.240[0.707-38.8]	1 0.105
Parity	NP PP MP	84 65 65	09 09 14	1.425 [0.907-2.238]	1 1.497[0.255-8.791] 1.544 [0.238-10.05]	1 0.655 0.648
Presence of ANC	Yes No	202 30	12 02	1.122 [0.239-5.262]	1 0.165 [0.016-1.742]	1 0.134
Place of ANC	H.C Private Hospital Governmental Hospital	64 07 131	07 0 23	1.183 [0.812-1.726]	1 0.446 [0.112-1.766] 0.00	1 0.250 0.998
Month of ANC First	< 3 months >3monthes	101 101	20 10	0.633 [0.343-1.168]	1 0.983[0.315-3.069]	1 0.977
Number of ANC visit	1-3 4-6 >7	28 156 18	03 23 04	1.176 [0.646-2.139]	1 0.114[0.011-1.204] 0.567[0.126-2.551]	1 0.071 0.459
PIH	Yes No	116 96	27 05		10.465[2.922-37.474]	0.00**
Membrane Status	Intact Ruptured	130 84	13 19	2.262 [1.061-4.822]	1 3.577[1.198-10.682]	1 0.022**
Duration of labor	<12 hours >12 hours NA	118 35 61	21 11 0	0.515 [0.296-0.897]	1 3.324 [1.101-10.034]	1 0.033**
Marital Status of mother	Single Married Widowed	17 166 02	02 57 02	2.916[0.900-9.455]	1 0.00 0.00	1 0.999 0.999
Prior Abortion	Yes No	29 156	03 50	1.107[0.547-2.242]	1 0.00	1 0.999
Gravidity	PG MG	59 126	13 48	1.729[0.870-3.435]	1 0.00	1 0.00
Parity	NP PP MP	77 54 54	16 20 25	1.482 [1.042-2.109]	1 409201195 1.320 [0.588-2.963]	1 0.999 0.500
Place of ANC	H.C Private Hospital Governmental Hospital	60 07 104	11 0 50	1.839 [1.299-2.606]	1 0.252 [0.098-0.649] 0.00	1 0.004** 0.998

Month of ANC First	< 3 months >3monthes	85 86	36 25	1.061 [0.650-1.730]	1 1.403[0.69-2.856]	1 0.355
Number of ANC visit	1-3 4-6 >7	26 128 17	05 51 05	1.711 [1.026-2.851]	1 1.220[0.234-6.367] 1.873[0.595-5.898]	1 0.813 0.283
Residence	Addis Ababa Outside Addis Ababa	141 44	43 18	1.341[0.703-2.559]	1.341[0.703-2.559]	1 0.017**

P< 0.05, AOR, adjusted odds ratio; COR, crude odd ratio; CI, confidence interval; PROM, premature rupture of membranes; PIH, Pregnancy Induced Hypertension.

Table 6: Factors associated with Adverse birth out come in selected public hospitals of Addis Ababa, Ethiopia 2022 (n=246)

5. Discussion

The Finding of this study showed that 86.9% of the participants have adverse maternal outcome while 75.2% of the Participants have adverse fetal birth outcome. Preterm delivery (42.6%), C/S and Instrumental delivery (58.95%), Oligohydraminos and Polyhydraminos (5.7%), Low Birth weight (72.4%), Poor Apgar score (15.8%), Still birth (8.2%), Birth defect (0.8%), Admission to MICU and NICU (2.4% and 60.8% respectively) were accounted for adverse birth outcome.

Among the Factors Presence of Pregnancy induced Hypertension, Membrane status and Duration of Labor were significantly associated with adverse maternal birth outcome while Place of ANC visit and Residence of the mother were significantly associated with adverse fetal birth outcome.

The prevalence of adverse birth outcome of this study is higher when compared to study done in Hosanna (24.5%) and Gondar (32.6%) [12,13]. The reason for the difference in this finding was the type of participants of which all participants of the selected public hospitals of Addis Ababa were referral hospitals so majority of the cases were referrals from health centers and clinics.

In this study mothers who had Pregnancy Induced Hypertension were 10 times more likely to have adverse maternal birth outcome when compared to mothers who do not have Hypertension. This is in line with the researches done in Dessie and Gondar [12]. The reason for this might be due to the fact that complications of hypertension during pregnancy can cause impaired placentation and Placental ischemia.

In the study Mothers who had ruptured membrane before the onset of Labor (Premature rupture of membrane (PROM)) were three times more likely to develop adverse maternal birth outcome as compared to mothers who had intact membrane before onset of labor. The finding is in agreement with a case control study done in western Ethiopia to assess adverse birth outcome [14]. The reason for this might be due to the fact premature rupture of membrane leads to Umbilical cord prolapse, Placental abruption and uterine contraction as amniotic fluid contains prostaglandin which in turn may result adverse birth outcome.

Mothers who had ANC follow up in private hospitals were 0.75 times less likely to get adverse fetal birth outcome as compared with mothers who had ANC follow up in the three public hospitals and health centers. This may be attributed to the quality of care in the private hospital. This might be due to the fact that good counseling given during the ANC follow-up helps the mother to get information on diet, danger signs of pregnancy and pregnancy related complications. The result of the study is in agreement with the study done in Oromia region on adverse birth out come and associated factors among mothers who delivered in Bale Zone Hospital [15].

In this study Mothers who live outside Addis Ababa were unlikely to have adverse fetal outcome, this is different from the study which is done in Butajira hospitals that mothers who live in rural residence were nearly three times more likely to encounter adverse birth outcome as compared with those who lives in urban residence [16]. The possible cause for this difference is that most of the catchment Health centers of the three public hospitals are from Addis Ababa; only few are from neighboring Oromia region. So the difference is because of most of the participants of the study are from Addis Ababa.

6. Strength and Limitation

6.1 Strength of the Study

• The Study has a comprehensible Operational definition of adverse birth outcome of twin's pregnancy that operationalize adverse birth outcome as adverse maternal and adverse fetal birth outcome.
• The checklist used to assess was Pre tested in a similar setting and a necessary modification was made to minimize the difficulty during data collection.

6.2 Limitation of the study

• Since the data were secondary data some variables that couldn't be found on the maternal chart were omitted from the Questionnaire.
• No temporal relationship is found in this Study.

7. Conclusions

Twin pregnancy is increasing worldwide as a result of an increment in artificial fertilization. Adverse birth outcome of Twins pregnancy is relatively higher when compared to similar studies conducted in Ethiopia. Preterm Labor (42.6%), C/S and Instrumental delivery (58.95%), Oligohydraminos+ Polyhydraminos (5.7%), and Maternal admission to MICU were identified as maternal outcome. Preterm neonate (42.6%), low birth weight (72.4%), Poor APGAR score (15.8%), still birth (8.2%), Birth defect (0.8%) were identified as fetal outcome.

Membrane Status (PROM), Duration of Labor, Pregnancy Induced Hypertension was significantly associated with maternal outcome and Place of ANC visit and Residence of the mother were significantly associated with Fetal outcome.

IVF: In vitro fertilization

Declarations

Ethical Approval and Consent to Participate

The ethical clearance was obtained from Institutional Review Board of KEA-MED University college and official letters was submitted to each respective health facility.After explaining the objectives of the study, informed written consent was obtained from all mothers, and anonymity and confidentiality of the data were kept. Respondents have the right not to participate or withdraw from the study at any stage, and all study methods were performed in accordance with the Declaration of Helsinki.

Consent for Publication: Not applicable.

Availability of Data and Materials: The data used to support the findings of this study are available from the corresponding author upon request

Competing Interests: The authors declare that they have no conflicts of interest

Funding: Not applicable.

Author Contributions

C.G; Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Visualization, Writing – original draft

A.L; Conceptualization, Formal analysis, Methodology, Resources, Software, Visualization, Writing and original draft

D,C,Conceptualization, Formal analysis, Methodology, Software, Supervision, Writing, review & editing

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