Ministry of Higher Education and Scientific Research

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Epidemiology Of Cesarean Section Among Primigravida Women

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Supervisor:

Ass.Lec. Raghad M. Azawi

Accomplished by:

Ahmed Rashid Salman

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بِسْمِ اللَّهِ الرَّحْمَٰنِ الرَّحِيمِ

{ هُوَ الَّذِي جَعَلَ الشَّمْسَ ضِيَاءً وَالْقَمَرَ نُورًا وَقَدَّرَهُ مَنَازِلَ لِتَعْلَمُوا عَدَدَ السِّنِينَ وَالْحِسَابَ مَا خَلَقَ اللَّهُ ذَٰلِكَ إِلَّا بِالْحَقِّ يُفَصِّلُ الْآيَاتِ لِقَوْمٍ يَعْلَمُونَ }

سورة يونس- الآية 5.

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Abstract

Background: Caesarean section is the commonest operative delivery technique in the world. Caesarean section is the delivery of the fetus, membrane, and placenta through abdominal and uterine incision after fetal viability, Cesarean section is usually performed when a vaginal delivery would put the baby's or mother's life or health at risk. Cesarean section can save lives, but it is frequently performed without medical indications. It is often done as an emergency procedure in women with cephalopelvic disproportion, obstructed labor, fetal distress, antepartum hemorrhage.

Aim: to determine epidemiology of caesarean section among primigravida women in Diyala city.

Subject and methods: The current study is descriptive study type was carried out in Diyala from 20th of November 2022 to the 23th of March 2023.The study design was by non-probability convenience sampling.

Results: Most of primigravida women in this study was irregular ANC visits in percentage (63.4%), and most group age less than 25 and (25-35) years old is irregular visits to antenatal care (64.4%), (62.9%) respectively. Most of primigravida women in this study is cesarean section in percentage (53.5%), and most the age group less than 25 years old with cesarean section (63%), and (65.7%) of age group (25-35) years old with vaginal delivery. Anemia is the most risk factor in primigravida women, and (67%) of them in age less than 22 years old, and mal presentation second most common risk. Most of primigravida women that regular visit to ANC is normal fetus in percentage (90%) while (3%) the fetus weight is less than 1500kg, In irregular visits, (57%) is normal fetus, (15%) abnormal weight.

Conclusions: There is (63.4%) of primigravida women, irregular ANC visitsand most of primigravida women in group age less than 25 and (25-35) years old is irregular visits to antenatal care. Anemia is the most risk factor in primigravida women, (67%) of them in age less than 22 years old, and mal presentation second most common risk. In irregular visits to ANC, (57%) is normal fetus, while (15%) the fetus weight is less than 1500kg, (6%) transfer to NICV/SCU, still birth (10%) and (14%) small gestational age pregnancy outcome. Most of primigravida women prefer caesarean section in percentage (53%), while (47%) prefer vaginal delivery.

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Abbreviations

ANC: antenatal care

CS: Caesarean section

Introduction

Caesarean section (CS) started to be done when the abdomen of dying women were incised and opened to save a fetus and avoid burying it with their mother during 600 before century and at the beginning of the 21st century CS rates was raised above (10-15%) which was recommended by WHO in many areas of the world [1]. The rate of cesarean delivery is often assessed the hospitals and health systems, the low percentage reflects more suitable, more efficient clinical practice and conserve optimal level of CS. Primary cesarean delivery will become one of the important determinants of cesarean rate in recent years, Due to large numbers of women trying vaginal birth after cesarean had drop, although CS was relatively safe, it is a major surgery and recovery that was relatively longer than that of the vaginal birth, CS was initiated as a lifesaving procedure in clinical practice for both the fetus and the mother. In addition, it was considered as one of the most emergency obstetrical operation [2].

Caesarean section is the commonest operative delivery technique in the world. Caesarean section is the delivery of the fetus, membrane, and placenta through abdominal and uterine incision after fetal viability [3]. The rate of Caesarean section is different across countries even between urban and rural areas, due to different socio-economic statuses, and opportunities to access public and private health care services [4]. According to American College of Obstetricians and Gynecologist (ACOG) report, Caesarean delivery significantly increased woman's risk vulnerability of pregnancy related morbidity and mortality which accounts (35.9 deaths per 100,000 live deliveries) as compared to a women posses vaginal delivery (9.2 deaths per 100,000 live births). Despite Caesarean section a lifesaving medical intervention and procedures to the decrease adverse birth outcome, controlling different postoperative neonatal and maternal complications are challenging in terms of patient safety, long duration of hospital stay, cost and psychological trauma. Maternal outcomes of Caesarean section included: postpartum fever, surgical site infection, puerperal sepsis, maternal mortality whereas neonatal sepsis, early neonatal death, stillbirth, perinatal asphyxia, low Apgar score, and prematurity were the most common complication of the newborn [5].

Despite World Health Organization (WHO) recommended the optimal rate of Caesarean section should be lie between 5 and 15% [6], it is significantly increasing even if the reasons for the continued increase in the Caesarean rates are not completely understood, women are having fewer children, maternal age is rising, use of electronic fetal monitoring is widespread, mal-presentation especially breech presentation, frequency of forceps and vacuum delivery is decreased, rate of labor induction increases, obesity dramatically rises and Vaginal birth after Caesarean decreased are some of the possible explanations, the mal-presentation and malposition, antepartum hemorrhage, obstructed labor, cephalopelvic disproportion, and multiple pregnancies are the most common indications of Caesarean section [7]. In general, an improvement in maternal surgical outcomes and progress in obstetric practice were claimed to be an arising in performance of caesarean section. Also safety modern an aesthesia, blood transfusion, antibiotics and the technical development of surgery and the advanced devices in the field of obstetrics and gynecology and neonatology units. All the above have led to the expansion of the Caesarean section. Beside that, there have been other obstetrics, medical, and social, ethical, economic and medico legal factors which have added to the list of indications leading to alarmingly high rate of caesarean sections all over the world [8]. Cesarean section is usually performed when a vaginal delivery would put the baby's or mother's life or health at risk. Cesarean section can save lives, but it is frequently performed without medical indications. It is often done as an emergency procedure in women with cephalopelvic disproportion, obstructed labor, fetal distress, antepartum hemorrhage and previous cesarean section resulting in high perinatal and maternal morbidities [9].

Cesarean section rates have risen worldwide. A study that involved 150 countries in 2014 reported a rate of 18.6% ranging from 6% in the least developed countries to 27.2% in the most developed countries. Cesarean section rates are highest in the Latin America and the Caribbean region (40.5%) and Northern America (32.3%), while they are lowest in Asia (19.2%) and Africa (7.3%) [3]. In the Arab countries, cesarean section rates vary widely with Egypt having the highest cesarean section rate (26.2%) and Mauritania the lowest (5.3%). [10]

Studies from industrial countries such as China, United States and Japan have shown that the indications for the cesarean section have changed over the last decades and increased knowledge about current indications

could lead to the reduction of cesarean section rates through correct counseling and advice to pregnant women and health workers, the worldwide increase in cesarean section rate which might be associated with maternal factors and health care services provided the impetus for carrying out this study. It is important to ensure that a cesarean section is provided to women in real need [11]. Caesarean sections are classified according to the urgency as following, Elective CS (scheduled or planned) the decision to do CS may be performed antepartum. It may be done if there is a medical, obstetrical reason or maternal request, the ideal time of cesarean section is about (39) weeks of pregnancy unless there is a medical indication while emergency CS (unscheduled or unplanned) was done when vaginal delivery was planned but reason for CS was happened suddenly [12], the decision to do it after labor has begun but it may also arise even when labor has not occurred. The morbidity and mortality were observed more with emergency CS than elective [13]. Apart from the clinical indications for caesarean section – breech presentation, dystocia and suspected fetal compromise – there is growing evidence that many women choose delivery by caesarean section for personal reasons, particularly in profit-motivated institutional settings that may provide implicit or explicit en-couragement for such interventions [14].

Identification of the factors influencing the C-section is critical to minimize the unnecessary practice of such life saving intervention and increase its access to those who needs it the most. Studies showed that factors related to childbearing women, families, communities and the broader society and factors related to health system stimulate the increased demand and supply of C-section related health services [15]. Health care-seeking behaviours such as seeking antenatal care (ANC), occurrence of health complication during pregnancy and labour, and types of facility where childbirth takes place, are strongly associated with women having C-section in Bangladesh [16]. In the absence of clinical justification for C-section, there is evidence for women's personal preference playing crucial role in decision making for C-section [16]. Such individual preference for C-section is found to have link with socio-demographic characteristics of pregnant women such as their age, education, occupation, household income and asset [17].

Skill and experience of the surgeon and the quality of care from supporting staff especially those in anesthesia play important role in

increase or decrease of mortality and morbidity after the Caesarean section [18].

The aim of study to determine epidemiology of caesarean section among primigravida women in Diyala city.

Methodology

Ethical and Approval Consideration

Permission was taken from primigravida pregnant woman to fill the information required and they were assured regarding the confidentiality of their responses. The aim of the study was explained and only those who agreed to participate are included in the study .

Study Population

The study was performed among primigravida pregnant woman in Baqubah hospital city.

Study design

The current study is descriptive study type was carried out in Diyala from 20th of November 2022 to the 23th of March 2023.The study design was by non-probability convenience sampling.

Sample size and sample procedure

The sample size was (112) of women. Trained very well to interview the questionnaire carefully and in scientific way. Respondents were assured that the information obtained would be confidential and used only for statistical purposes.

Questionnaire and Interview

The questionnaire used for data collection was designated in English language. Interveiwers administer it and it includes mainly closed questions.

Data Analysis and Presentation

All data management and analysis was done by using manual statistical methods. Data have been represented b suitable tables and figures.

Results

Table (1) Distribution of sample study according to age group and antenatal care visits.

Antenatal visits / Age groups	Regular	Irregular	Total
Less 25 years	26 (35.6%)	47 (64.4%)	**73 100%**
25-35 years	13 (37.1%)	22 (62.9%)	**35 100%**
35 years and more	2 (50%)	2 (50%)	**4 100%**
Total	41 (36.6%)	71 (63.4%)	**112 100%**

The chi-square statistic is 0.3444. The p-value is .841821. The result is not significant at $p < .05$.

Most of primigravida women in this study was irregular ANC visits in percentage (63.4%), and most group age less than 25 and (25-35) years old is irregular visits to antenatal care (64.4%), (62.9%) respectively, while (50%) from the age group more than 35 years old is irregular visits.

Table (2) Distribution of sample study according to age group and method of delivery.

Delivery methods / Age groups	Vaginal delivery	Cesarean section	Total
Less than 25 year	27 (37%)	46 (63%)	73 100%
25-35 years	23 (65.7%)	12 (34.3%)	35 100%
More than 35 years	2 (50%)	2 (50%)	4 100%
Total	52 (46.5%)	60 (53.5%)	112 100%

The chi-square statistic is 7.8711. The *p*-value is .019535. The result is significant at $p < .05$.

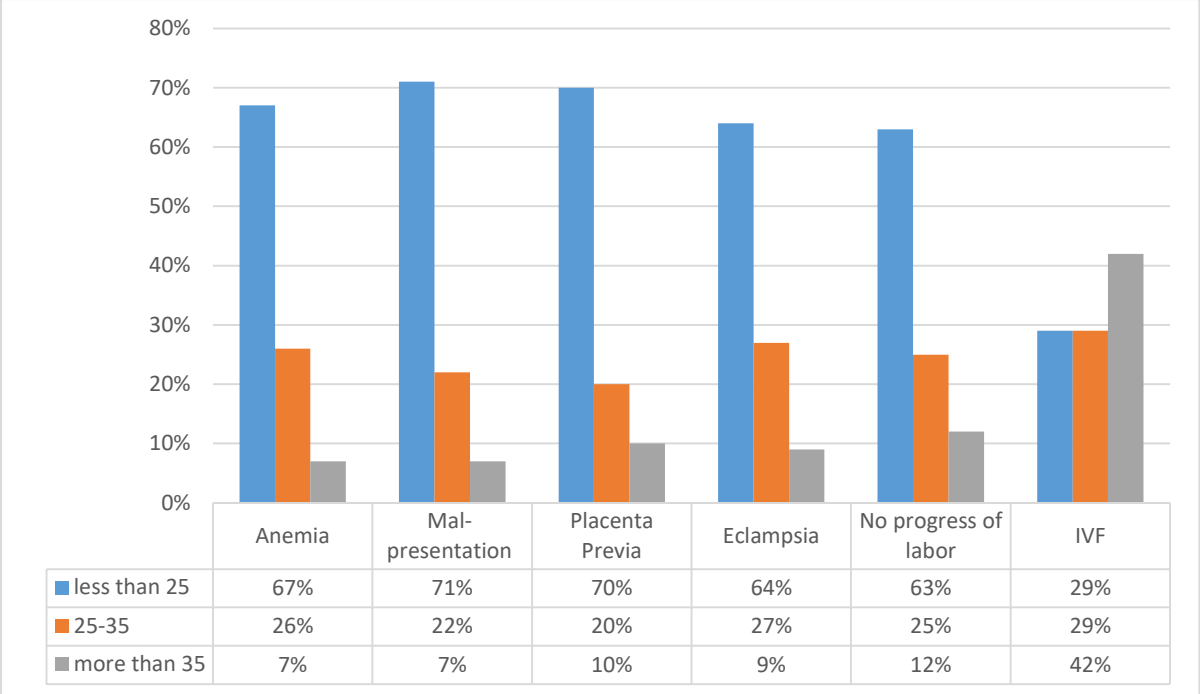
Most of primigravida women in this study is cesarean section in percentage (53.5%), and most the age group less than 25 years old with cesarean section (63%), and (65.7%) of age group (25-35) years old with vaginal delivery, and (50%) in age more than 35 years with vaginal delivery and other half with cesarean section.

Table (3) Distribution of sample study according to antenatal care visits and method of delivery.

ANC / Delivery	Regular	Irregular	Total
Vaginal	27 (52%)	25 (48%)	52 (100%)
Cesarean	14 (23%)	46 (77%)	60 (100%)
Total	41	71	112

The chi-square statistic is 9.8119. The p-value is .001734. The result is significant at $p < .05$.

Approximately half of primigravida women with vaginal delivery (52%) is regular antenatal care visits, while (77%) of primigravida women with cesarean section is irregular antenatal care visits.



	Anemia	Mal-presentation	Placenta Previa	Eclampsia	No progress of labor	IVF
less than 25	67%	71%	70%	64%	63%	29%
25-35	26%	22%	20%	27%	25%	29%
more than 35	7%	7%	10%	9%	12%	42%

Figure (1): the frequency distribution that show association between risk factor and age group.

Anemia is the most risk factor in primigravida women, and (67%) of them in age less than 22 years old, and mal presentation second most common risk also age group most common with this risk with placenta Previa, eclampsia, no progress of labor in percentage (71%), (70%), (64%), (63%) respectively. While the IVF the age group more than 35 years old is the most common in percentage (42%) then other age groups both is (29%).

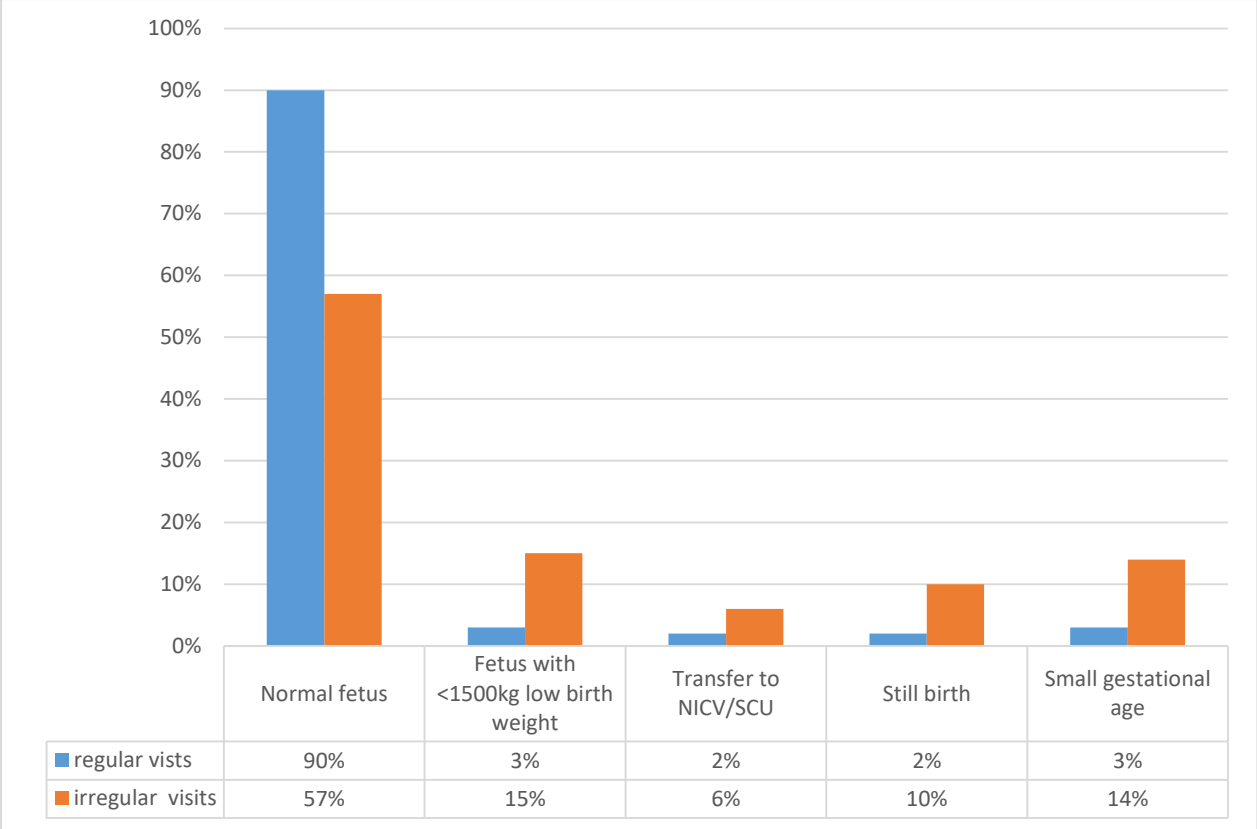


Figure (2): the frequency distribution that show association between pregnancy outcome and antenatal care visit.

Most of primigravida women that regular visit to ANC is normal fetus in percentage (90%) while (3%) the fetus weight is less than 1500kg, (2%) transfer to NICV/SCU, still birth and (3%) small gestational age outcome.

In irregular visits to ANC, (57%) is normal fetus, while (15%) the fetus weight is less than 1500kg, (6%) transfer to NICV/SCU, still birth (10%) and (14%) small gestational age pregnancy outcome.

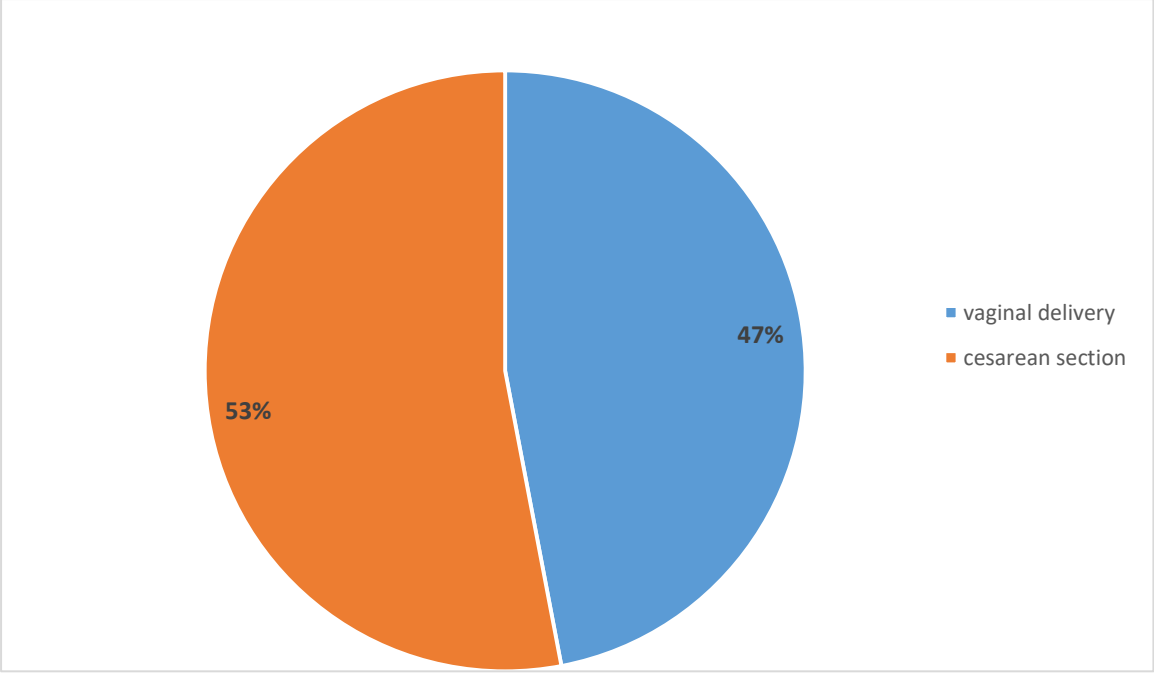


Figure 3: this figure shows the preference of primigravida women to type of delivery.

Most of primigravida women prefer cesarean section in percentage (53%), while (47%) prefer vaginal delivery.

Discussion

Caesarean section is the commonest operative delivery technique in the world. Caesarean section is the delivery of the fetus, membrane, and placenta through abdominal and uterine incision after fetal viability.

In the current study, most of primigravida women in group age less than 25 and (25-35) years old is irregular visits to antenatal care (64.4%), (62.9%) respectively, while (50%) from the age group more than 35 years old is irregular visits.

While in another study was conducted in Munich, Germany [19], most of primigravida women all group age is regular visits to antenatal care in percentage (83%) for group age less than 30 years old, (85%) for age group more than 30 years old, and this percentage disagree with the present study may be due to high level of education about the pregnancy and child health and high quality of health services that encourage women to regular visits to antenatal care.

Most of primigravida women in the current study is cesarean section in percentage (53.5%), and most the age group less than 25 years old with cesarean section (63%), and (65.7%) of age group (25-35) years old with vaginal delivery, and (50%) in age more than 35 years with vaginal delivery and other half with cesarean section.

Also in study was conducted in Brisbane, Australia [20], most of primigravida women in age group between 18 to 35 years old with cesarean sections in percentage (66%), the high percentage of cesarean sections also in other age group older than 35 in percentage (59%).

While in study was conducted in the Maternity Teaching Hospital in Erbil City, Iraq [21], about (35.7%) cesarean section in 2015 while in 2010 the percentage is (28.5%).

In additions, in the study was conducted in Karbala, Iraq [22], majority of the cesarean section samples (49.7%) was primigravida.

This rate in primigravida may be because of fear women from labor pain, trauma or injury may occur to birth or maybe they have no family support during labor and birth.

This percentage is higher than other studies may be due to monthly income above poverty line, current obstetrics problems and risk factors are increasing caesarean section delivery.

In the current study, approximately half of primigravida women with vaginal delivery (52%) is regular antenatal care visits, while (77%) of primigravida women with cesarean section is irregular antenatal care visits.

This percentage approximately similar in study was conducted in Buenos Aires, Argentina [23], (57%) of primigravida women with vaginal delivery is regular antenatal care visits, while (73%) of primigravida women with cesarean section is irregular antenatal care visits.

In the present study, anemia is the most risk factor in primigravida women, and (67%) of them in age less than 22 years old, and mal presentation second most common risk also age group most common with this risk with placenta Previa, eclampsia, no progress of labor in percentage (71%), (70%), (64%), (63%) respectively. While the IVF the age group more than 35 years old is the most common in percentage (42%) then other age groups both is (29%).

While in study of Buenos Aires[23], Argentina, Cephalopelvic disproportion is the most risk factor in primigravida women, (61%) of them in age less than 30 years old, and second most common is failure of labor progress, (78%) in age less than 30 years old.

In addition, study of Karbala, Iraq [22], emergency-risk to baby (20.28%), breech presentation (17.95%), unknown (17.27%), emergency-risk to mother (13.12%) and exhaustion after long labor (10.22%) were the main risk factor.

In the current study, most of primigravida women that regular visit to ANC is normal fetus in percentage (90%) while (3%) the fetus weight is less than 1500kg, (2%) transfer to NICV/SCU, still birth and (3%) small gestational age outcome.

In irregular visits to ANC, (57%) is normal fetus, while (15%) the fetus weight is less than 1500kg, (6%) transfer to NICV/SCU, still birth (10%) and (14%) small gestational age pregnancy outcome.

In study was conducted in Brisbane, Australia[20], most of primigravida women that regular visits to ANC is normal fetus (88%), (2%) the fetus weight is less than 1500kg, (3%) and still birth (3%). While pregnancy outcome in women with irregular visits to ANC, (54%) normal fetus, (17%) the fetus weight is less than 1500kg, (8%) and still birth (12%).

In study was conducted in Ethiopia [24], Neonatal sepsis (19.5%), stillbirth (5%), prematurity (8.3%), perinatal asphyxia (20%), low Apgar score (22.2%), and meconium aspiration syndrome (10.5%) were the most common neonatal complications following the Caesarean section in Ethiopia. the current study finding is supported by the study done in India [25], Jordan [26], and Ghana [27].

In the current study, Most of primigravida women prefer cesarean section in percentage (53%), while (47%) prefer vaginal delivery.

While in study conducted in Karbala, Iraq [22], (35%) of women were prefer CS. In while in study of Buenos Aires [23], Argentina, We observed that the majority of women preferred to deliver vaginally. Only 8 % of women in the public sector and 6 % in the private sector stated a preference for cesarean section. Fear of pain and safety were the most frequent expressed reasons for preferring cesarean section, whereas women who preferred vaginal delivery felt it was the most natural mode. However, when women had to evaluate which were the most important attributes of their preferred mode of delivery among a pre-defined list of factors, the quality of sex after childbirth exhibited the strongest association, followed by a fast recovery, less painful experience, no episiotomy, and the possibility of scheduling the delivery, in order of decreasing strength.

Conclusions

1- There is (63.4%) of primigravida women, irregular ANC visitsand most of primigravida women in group age less than 25 and (25-35) years old is irregular visits to antenatal care.
2- Most of primigravida women in the current study is caesarean section in percentage (53.5%), and most the age group less than 25 years old with caesarean section (63%).
3- About (77%) of primigravida women with caesarean section is irregular antenatal care visits.
4- Anemia is the most risk factor in primigravida women, and (67%) of them in age less than 22 years old, and mal presentation second most common risk also age group most common.
5- In irregular visits to ANC, (57%) is normal fetus, while (15%) the fetus weight is less than 1500kg, (6%) transfer to NICV/SCU, still birth (10%) and (14%) small gestational age pregnancy outcome.
6- Most of primigravida women prefer caesarean section in percentage (53%), while (47%) prefer vaginal delivery.

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Appendix

Name	
Age	(14-19) (20-25) (26-31) (32- 37) (38-older)
Educational status	(illiterated) (literated) (1st school) (2nd school &above)
Occupation	
Residence	(urban) (rural)
Antenatal care	(regular visit) (irregular visit) (not visit)
Type of delivery	□ Vaginal delivery □ Cesarean section
Has premature rupture of membrane	Yes No
Maternal pelvic deformity	Yes No
Disease in gestational	Hypertensions DM
Risk factors	
Eclampsia	Yes No
Umbilical cord prolapse	Yes No
Placenta previa	Yes No
Abnormal placenta site	Yes No
Mal-presentation	Yes No
Contracted pelvic	Yes No
IVF conception	Yes No
Antepartum hemorrhage	Yes No
Pregnancy hypertensions	Yes No
Amount of fluid	Yes No
Anemia	Yes No
Smoking during pregnancy	Yes No
Uterine anomaly	Yes No
No progress of labor	Yes No

Family history	Yes	No
No comorbidity	Yes	No
Outcome after CS		
Normal fetus		
Fetus with <1500kg low birth weight		
Transfer to NICV/SCU		
Still birth		
Small gestational age		
preference to delivery	Vaginal	CS