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*By Universitas Muhammadiyah Sidoarjo*

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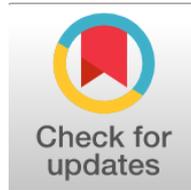
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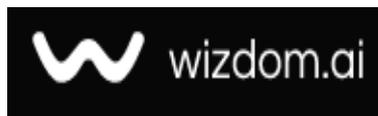
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## Placenta Previa Prevalence and Risk Factors in Women Undergoing Cesarean Sections : Prevalensi dan Faktor Risiko Placenta Previa pada Wanita yang Melakukan Operasi Caesar

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### Abstract

**General Background** Placenta previa is a major obstetric condition associated with antepartum hemorrhage and adverse maternal and neonatal outcomes. **Specific Background** Rising cesarean section rates and increasing maternal age have contributed to higher reported cases, particularly in high-risk hospital settings. **Knowledge Gap** Limited region-specific data are available regarding placenta previa prevalence and maternal risk factors among women undergoing cesarean delivery in Iraq. **Aims** This study aimed to estimate the prevalence of placenta previa and identify associated maternal risk factors among cesarean deliveries in AL-Muthanna and AL-Diwaniya, Iraq. **Results** A retrospective cross-sectional analysis of 300 cesarean deliveries identified placenta previa in 15% of cases, with advanced maternal age, multiple previous cesarean sections, high parity, elevated body mass index, anterior placental location, and comorbidities showing significant associations. **Novelty** This study provides stratified regional evidence linking surgical history and maternal characteristics to placenta previa within a high-cesarean population. **Implications** Early identification of high-risk women may support tailored antenatal surveillance and surgical planning to reduce maternal complications.

**Keywords:** Placenta Previa, Cesarean Section, Maternal Age, Obstetric Risk Factors, Pregnancy Complications

#### Key Findings Highlights:

Placenta previa was identified in a notable proportion of cesarean deliveries within the study population.

Advanced maternal age and repeated surgical deliveries showed strong statistical associations.

Stratified analysis clarified maternal and placental characteristics linked to higher clinical risk.

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## Introduction

The placenta's location in the lower uterine segment, either extremely near to or partially covering the internal os of the cervix, causes placenta previa, an obstetric issue (1). It is estimated that the incidence is between 0.3% and 2% worldwide (2). This condition is thought to increase the chance of obstetric hemorrhage, which can lead to postpartum hemorrhage issues that can be fatal for both the mother and the baby (3). The prevalence of placenta previa has increased over the past few decades, and this trend is associated with an increase in cesarean sections and an aging of the mother (4,5). Since its inspection and diagnosis necessitate the attending physician's expertise and a variety of diagnostic tools available in the hospital unit, its precise quantification is challenging (6).

Negative outcomes for the mother and the fetus are linked to placenta previa. Prematurity and poor Apgar scores result in increased fetal morbidity, necessitating admission to the newborn critical care unit. It is possible for a newborn to die. Severe bleeding, frequent blood transfusions, urogenital injuries, sepsis, extended hospital stays, and stays in the intensive care unit (ICU) are examples of maternal issues (7,8). Placenta previa can cause premature birth, which is linked to higher rates of perinatal morbidity and mortality. Numerous problems, including infant infection, hypoxia at birth, and birth weight below the 10th centile for gestational age, are linked to preterm delivery. Placenta previa affects about 1 in 300 newborns (9, 11). Maternal age is linked to the occurrence of placenta previa, which is around 1 in 1500 for women under 19 and 1 in 100 for those over 35 (12).

Recent cross-sectional studies have shown that prevalence rates among hospital deliveries range from 0.5% to 2%; higher rates were observed in tertiary facilities that manage high-risk pregnancies (13,14). For instance, a 10-year retrospective study carried out in Saudi Arabia discovered a considerable degree placenta previa rate of 0.69%, which was highly associated with advanced mother age, high parity, and repeated cesarean sections (15). In a similar vein, Sugai et al. (7) found that 5.78% of Pakistani women had previously undergone cesarean scars, underscoring the significance of surgical history and regional variety.

Even with improvements in imaging and surgical planning, early detection of high-risk individuals remains crucial. Cross-sectional analyses provide useful data on risk classification and prevalence trends, allowing for resource allocation and focused interventions (16,15). The purpose of this study is to assess maternal risk factors related to lower segment placenta previa in a specific clinical group and to find out how common it is among cesarean deliveries.

## Methodology

The maternity Teaching Hospital's obstetrical department in AL-Muthanna and AL-Diwaniya, Iraq, served as the study's site. The study started on June 18, 2024, after fulfilling all requirements and receiving ethical permission (197) from the relevant authorities. The information was gathered prospectively between September 2024 to September 24, 2025. To choose cases, non-probability purposive sampling was used. Instead of choosing participants at random from the general community, we purposefully included those who satisfied particular diagnostic and clinical criteria using this selection technique. At the selected facilities, 300 cesarean deliveries were recorded over this time (50 cases of placenta previa out of all cesarean deliveries).

A qualified radiologist used transabdominal ultrasonography to diagnose placenta previa prior to surgery. With the patient's permission, a transvaginal scan was occasionally performed to locate the placenta in dubious circumstances. At the time of operation, placental localization was immediately observed to confirm the diagnosis. MRI was not performed on any of the patients. In addition to general consent, special consent for hysterectomy was obtained in all patients suspected of having a morbidly adherent placenta. In each of these cases, at least four blood units were cross-matched, and a top doctor conducted the procedure. These instances were handled using a multidisciplinary approach.

The incidence of risk factors was assessed and the baseline features of those with persistent placenta previa at delivery were examined. The study evaluated a number of factors and demographics, including age, history of uterine surgery, including D&C, one or more prior Caesarean sections, hysterotomy or myomectomy, and the existence of comorbidities. Preeclampsia, anemia, persistent hypertension, twins, and pregestational and gestational diabetes mellitus were among these comorbidities.

This study included fifty placenta previa patients. Information was gathered. Maternal age, parity, prior uterine surgeries and miscarriages, intraoperative and postoperative problems, expected blood loss, number of blood transfusions, and hospital stay were all included. Pediatricians evaluated every newborn right away. SPSS 17 was used to enter and analyze maternal and neonatal data. The mean and standard deviation were used to display quantitative data.

## Result

Variables	Category	F
Age of the mother	19-27 years	108(36.0%)
	28-36 years	90(30.0.0%)
	≥36 years	108(34.0%)
BMI of placenta previa groups	<u>Mean</u> : 26.5 SD= 1.21	
Residence	Urban	195(65.0%)
	Rural	105(35.0%)
Comorbidity of placenta previa groups	Hypertension	21(21.0%)
	Diabetes	12(12.0%)
C/S previous <u>history of</u> placenta previa groups	Yes	230 (69.0%)
	No	70 (31.0%)

Figure 1. **Table 1. Maternal Demographics and Clinical Characteristics**

Finding	Frequency (n=100)	Percentage (%)
<b>Anterior Placental Location</b>	22	6.6%
<b>Posterior Location</b>	11	3.3%
<b>PAS Suspected</b>	9	2.7%
<b>Confirmed PAS ( Accreta )</b>	4	1.2%
<b>Hysterectomy</b>	4	1.2%
<b>Risk Factor</b>	<b>Prevalence (%)</b>	<b>P-value</b>
<b>Multiple Previous CS</b>	83.0%	0.022
<b>Parity ≥2</b>	57.8%	0.01
<b>BMI ≥26</b>	30.0%	0.006
<b>Anterior Placental Site</b>	61.0%	0.021
<b>Uterine Surgery</b>	18.9%	0.043
<b>Comorbidity</b>	43.0%	0.003

Table 2. **Table 3. Stratified Risk Factors Associated with Placenta Previa**

## Discussion

One of the most frequent causes of antepartum hemorrhage that could kill a mother today is placenta previa. Therefore, early diagnosis is necessary to improve maternal outcomes. Transvaginal ultrasonography or transabdominal sonography are typically used to diagnose this disease (17, 18). Maternal age, multiparity, prior curettage, and prior cesarean delivery are among the variables most strongly linked to this syndrome. Placenta previa-related bleeding is a major danger in obstetric treatment. In cases of placenta previa, this study investigated the relationship between a number of risk factors and adverse outcomes for both mothers and neonates.

The frequency of placenta previa in the Asian community and the findings of this study were comparable to those of earlier studies (19–22). Placenta previa was found to be substantially correlated with maternal age, multiparity, previous cesarean sections, and curettage history 10. Due to uterine aging and the consequences of several births, maternal age undoubtedly affects the incidence of placenta previa (23). For ladies who are delaying having children but decide to do so in the future, this conclusion is clinically significant. However, in contrast to earlier studies, our investigation found no correlation between prevalent risk factors, including smoking and placenta previa. This is because it is evident from the statistics that only 230 out of 300 pregnant women reported having a previous history of placenta previa, indicating that smoking is not common among Iraqi women.

Although our results showed that low birth weight and preterm delivery before 37 weeks are unrelated to placenta previa, placenta previa is known to be a cause of preterm labor and delivery, which is considered a significant cause of perinatal morbidity and death, particularly lung immaturity and asphyxia at birth. This could be explained by the possibility of a long-term, trouble-free pregnancy if placenta previa is discovered early. Verifying whether the association between these

characteristics is consistent with previous research is difficult, though (24).

It was observed that this study has certain drawbacks. First, because our study was conducted in a hospital, it may not fully represent the prevalence of placenta previa in the al-Fallujah population because the percentage of placenta previa may have been underestimated as a result of inaccurate hospital discharge data and birth certificates. The second limitation is that some data, including body mass index, uterine fibroids, overall weight increase, using reproductive technologies, and working throughout pregnancy, may not have been included in this study.

This study's retrospective methodology and reliance on surgical data for placental localization are among its limitations. However, the application of logistic regression reinforces the validity of the discovered predictors, and the inclusion of Tow hospitals from the Iraq region improves generalizability. This study's strengths are its large sample size, thorough regional coverage, and stratified analysis that separates placental sites and links them to specific maternal risk factors. It provides new insights into surgical history and implantation trends in communities with a high rate of cesarean sections by combining logistic modeling and outcome-based measurements.

## Conclusion

The most common risk factors were advanced maternal age and prior cesarean section, and the prevalence of placenta previa was comparable to that documented in the literature. It is feasible to lessen problems and create action plans for individualized treatment during pregnancy and birth by identifying risk factors in women with placenta previa.

**The Scientific Committee of the University of AL- Furat Al-Awsat Technical University, Alsammawah gave ethical clearance.**

**Conflict of interest:** authors disclose any type of conflicts

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