

# Determinants of Adverse Neonatal Outcomes among Geriatric Pregnancies in Douala (Cameroon)

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## Abstract

**Introduction:** The global increase in maternal age at conception, facilitated by socio-economic advancements and assisted reproductive technologies, has led to a rise in so-called geriatric pregnancies. In resource-limited countries, this phenomenon is associated with a higher risk of obstetric and neonatal complications. This study aimed to determine the frequency and factors associated with adverse neonatal outcomes among pregnant women aged 35 and older in Douala. **Methods:** A prospective longitudinal observational study was conducted from January to August 2025 at the maternity ward of Laquintinie Hospital in Douala. The study included 234 pregnant women aged  $\geq 35$  years with pregnancies  $\geq 28$  weeks gestation. Sociodemographic, obstetric, and neonatal data were collected from obstetric records and analyzed using multivariate logistic regression (SPSS v.26.0). The significance level was set at  $p < 0.05$ . **Results:** The majority of participants were aged 35 - 40 years (67.9%), multiparous (73.9%), and without stable employment (31.6%). Adverse neonatal outcomes occurred in 34.6% of births, primarily prematurity (20.9%), intrauterine fetal death (7.3%), and neonatal asphyxia (4.7%). After adjustment, the factors independently associated with adverse neonatal outcomes were: maternal age  $\geq 40$  years (OR = 2.4;  $p = 0.012$ ), nulliparity or grand multiparity (OR = 2.7;  $p = 0.008$ ), medical history (hypertension, HIV, diabetes) (OR = 3.9;  $p < 0.001$ ), previous cesarean section (OR = 2.1;  $p = 0.024$ ), prenatal visits  $< 1/\text{month}$  (OR = 6.5;  $p < 0.001$ ), lack of iron-folic acid supplementation (OR = 4.8;  $p = 0.017$ ) and calcium (OR = 3.2;  $p = 0.003$ ), intercurrent pathology during pregnancy (OR = 3.7;  $p < 0.001$ ), and multiple pregnancies (OR = 5.0;

$p = 0.037$ ). **Conclusion:** Adverse neonatal outcomes among geriatric pregnant women in Douala are common and result from both biological and contextual factors. Strengthening monthly prenatal follow-up, systematic supplementation, and early screening for comorbidities is key to reducing preventable perinatal mortality. An integrated multidisciplinary approach is essential to improve neonatal prognoses in pregnancies at advanced maternal age.

## Keywords

Geriatric Pregnancy, Neonatal Outcomes, Determinants, Cameroon

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## 1. Introduction

The global demographic shift is accompanied by a growing delay in the age of motherhood, facilitated by access to contraception, extended education, and advancements in assisted reproductive technologies [1]. Thus, geriatric pregnancy, traditionally defined as a pregnancy occurring in a woman aged 35 years or older, is increasingly becoming a phenomenon in many countries, including in sub-Saharan Africa [2]. However, advanced maternal age is a recognized risk factor for obstetric and neonatal complications. Many studies have shown an association between late pregnancy and preeclampsia, gestational diabetes, cesarean section, prematurity, low birth weight, and neonatal asphyxia [3] [4]. These risks are attributed to decreased ovarian function, an increased prevalence of chronic conditions (hypertension, diabetes, obesity), and often impaired placentation [5]. In resource-limited countries, such as Cameroon, these risks are exacerbated by contextual factors: inadequate prenatal care, restricted access to specialized care, self-medication, and low use of early screening techniques [6] [7]. This study aims to determine the frequency and factors associated with adverse neonatal outcomes among geriatric pregnant women monitored and who gave birth in Douala.

## 2. Methods

### 2.1. Study Type and Setting

This is a longitudinal observational study conducted in the maternity ward of Laquintinie Hospital in Douala. The study was carried out over a period of 8 months from January to August 2025.

### 2.2. Study Population

The study included all women who gave birth during the study period and met the following criteria:

#### 2.2.1. Inclusion Criteria

- Maternal age  $\geq 35$  years at the time of delivery (WHO definition of geriatric pregnancy);
- Pregnancy carried to  $\geq 28$  weeks of amenorrhea;

- Complete obstetric records available (mother and newborn).

### 2.2.2. Exclusion Criteria

- Patients refusing to participate in the study;
- Incomplete or unusable records.

## 2.3. Sampling

An exhaustive sampling was conducted, including all geriatric pregnancies recorded in the obstetrical register. The final sample size was  $N = 234$ .

## 2.4. Variables Studied

### 2.4.1. Independent Variables (Maternal Factors)

- Maternal age (35 - 39 years,  $\geq 40$  years);
- Parity (primiparous, multiparous, grand multiparous);
- Education level and marital status;
- Medical and obstetric history (hypertension, diabetes, previous cesarean section);
- Prenatal care (number of prenatal visits, start of care, supplementation);
- Delivery method (vaginal/cesarean).

### 2.4.2. Dependent Variables (Adverse Neonatal Outcomes)

The primary dependent variable, “adverse neonatal outcome,” was defined as a composite endpoint including one or more of the following:

- prematurity (<37 weeks), low birth weight (<2500 g),
- neonatal asphyxia (Apgar < 7 at 5 minutes),
- intrauterine fetal death, or perinatal death ( $\leq 7$  days).

Overall, 81 newborns (34.6%) met at least one of these criteria

## 2.5. Data Collection Tools

Data was collected using a structured data sheet, developed from obstetric and neonatal records and interactions with the pregnant women.

## 2.6. Statistical Analysis

Data was entered and analyzed using SPSS software version 26.0. Quantitative variables were presented as mean  $\pm$  standard deviation. Qualitative variables were expressed in numbers and percentages. Associations between independent variables and adverse neonatal outcomes were tested using Pearson's  $\chi^2$  or Fisher's exact test, as appropriate. Significant variables in the bivariate analysis ( $p < 0.20$ ) were included in a multivariate logistic regression to identify independent predictive factors. The significance threshold was set at  $p < 0.05$ .

## 2.7. Ethical Considerations

The prospective nature of the data required the individual consent of participants, and confidentiality was ensured at all stages of data processing.

### 3. Results

#### 3.1. Neonatal Outcomes of Geriatric Pregnancies in Douala

The analysis of neonatal outcomes highlights contrasting results, combining an overall good delivery process with significant fetal morbidity.

##### 3.1.1. Delivery Method

Among the 234 births, 50.8% were cesarean deliveries, while 49.2% were vaginal deliveries. This high rate of cesarean sections reflects the cautious obstetrical approach typically adopted for older women, who often have comorbidities or antenatal complications.

##### 3.1.2. Gestational Age at Birth

The majority of births occurred at term (37 - 41 weeks of amenorrhea), representing 73.9% of cases. However, premature births accounted for 23.8% of the total, including 17.5% late preterm (33 - 36 weeks) and 6.3% early and moderate preterm (22 - 32 weeks). Post-term births ( $\geq 42$  weeks) were infrequent (3.4%). These figures indicate a notable proportion of preterm births.

##### 3.1.3. Birth Weight

Most newborns had a weight between 2500 and 4000 g (74.8%), indicating satisfactory fetal growth for the majority of pregnancies. Low birth weight newborns ( $< 2500$  g) represented 21.8%, a proportion higher than the expected standards for the general population, highlighting the fetal vulnerability associated with advanced maternal age. Macrosomia ( $\geq 4000$  g) was rare (3.4%).

##### 3.1.4. Fetal and Neonatal Complications

Nearly one-third of the newborns (34.6%) presented at least one fetal or neonatal complication. The most frequent complications were prematurity (20.9%), followed by intrauterine fetal deaths (7.3%), acute neonatal asphyxia (4.7%), and perinatal deaths (3.8%). Hypotrophy (3.4%) and macrosomia (2.6%) reflected growth imbalances related to placentation or maternal metabolism. Neonatal infections (0.9%) and jaundice (0.4%) were rare (**Table 1**).

**Table 1.** Neonatal outcomes of geriatric pregnancies (N = 234).

Variables	Number (N)	Percentage (%)
<b>Delivery Method</b>		
Vaginal	115	49.2
Cesarean	119	50.8
<b>Term at Birth (weeks)</b>		
28 - 32	8	3.4
33 - 36	41	17.5
37 - 41	173	73.9
$\geq 42$	8	3.4

Continued

Fetal Weight (g)		
<2500	51	21.8
2500 - 4000	175	74.8
>4000	8	3.4
Fetal Complications		
No	153	65.4
Yes	81	34.6
Type of Complication		
Perinatal Death	9	3.8
Intrauterine Fetal Death (IUFD)	17	7.3
Acute Fetal Asphyxia (AFA)	11	4.7
Hypotrophy	8	3.4
Jaundice	1	0.4
Neonatal Infection (NNI)	2	0.9
Macrosomia	6	2.6
Prematurity	49	20.9
Polymalformation	1	0.4

### 3.2. Determinants of Adverse Neonatal Outcomes

Bivariate analyses were first performed to explore unadjusted associations between maternal characteristics and adverse neonatal outcomes. Variables with a p-value < 0.20 were subsequently entered into a multivariate logistic regression model to identify independent predictors.

#### 3.2.1. Sociodemographic Characteristics Associated with Adverse Neonatal Outcomes (Unadjusted Analysis)

The logistic analysis highlights the clear influence of sociodemographic characteristics on the neonatal prognosis of geriatric pregnancies in Douala.

- Maternal age  $\geq 40$  years: Women aged 40 - 45 have a risk increased by 2.2 times ( $p = 0.010$ ), and for women  $\geq 45$  years, the risk is increased by 4.5 times ( $p = 0.048$ ). These results illustrate the progressive decline in placental function and the increased frequency of pregnancy-related pathologies with age.
- Marital status: Single women have nearly double the risk of adverse neonatal outcomes (OR = 1.9 (1.1 - 3.6);  $p = 0.026$ ), likely related to lesser socio-economic and emotional support during pregnancy.
- Level of education: Primary education emerges as an aggravating factor (OR = 4.1 (1.01 - 6.4);  $p = 0.046$ ), indicating the protective role of education in understanding and adhering to prenatal care.
- Employment status: Unemployed women have a four times higher risk of adverse neonatal outcomes (OR = 3.9 (1.8 - 8.6);  $p < 0.001$ ), and those in the informal sector have a doubled risk (OR = 2.1 (1.0 - 4.5);  $p = 0.049$ ). This social

gradient illustrates the determining impact of economic status on access to quality prenatal and obstetric care (**Table 2**).

**Table 2.** Sociodemographic factors associated with adverse neonatal outcomes (unadjusted analysis, N = 234).

Variable	Categories	Adverse Neonatal Outcomes		OR (IC 95%)	p-value
		Yes	No		
<b>Maternal Age (years)</b>	35 - 40	45	114	1	-
	40 - 45	31	36	2.2 (1.2 - 4.1)	<b>0.010</b>
	≥ 45	5	3	4.5 (1.0 - 19.8)	<b>0.048</b>
<b>Marital Status</b>	Married	26	65	1	-
	Single	55	88	1.9 (1.1 - 3.6)	<b>0.026</b>
<b>Level of Education</b>	Higher	15	43	1	-
	Secondary	54	109	1.3 (0.6 - 2.8)	0.43
	Primary	10	3	4.1 (1.0 - 16.4)	<b>0.046</b>
<b>Profession</b>	Salaried (≥Minimum Wage)	16	53	1	-
	Unemployed	40	34	3.9 (1.8 - 8.6)	<b>&lt;0.001</b>
	Informal Sector	25	61	2.1 (1.0 - 4.5)	<b>0.049</b>

### 3.2.2. Obstetric and Medical History Associated with Adverse Neonatal Outcomes (Unadjusted Analysis)

The analysis of obstetric and medical history reveals several significant risk factors for adverse neonatal outcomes among geriatric pregnant women in Douala.

#### 1) Parity

Nulliparous women have more than double the risk of an adverse neonatal outcome (OR = 2.3 (1.0 - 5.5);  $p = 0.048$ ), probably linked to cervical immaturity, prolonged labor, or more frequent induction. Grand multiparous women (>4) are even more at risk (OR = 6.0 (1.2 - 29.6);  $p = 0.027$ ), reflecting the impact of uterine fatigue and complex obstetric history.

#### 2) Medical History

The presence of a medical history quadruples the risk of adverse neonatal outcomes (OR = 4.2 (2.1 - 8.1);  $p < 0.001$ ). Among these conditions, HIV emerges as the most determining factor (OR = 5.7 (1.2 - 27.1);  $p = 0.027$ ), followed by hypertension (OR = 3.9 (0.8 - 18.7); non-significant trend). Although individual conditions such as hypertension and diabetes showed variable trends, the final adjusted model considered “medical history” as a composite variable encompassing hypertension, HIV infection, and diabetes. Collectively, this composite factor increased the risk of adverse neonatal outcomes nearly fourfold (adjusted OR = 3.9;  $p < 0.001$ ).

#### 3) History of Cesarean Section

Women with a history of cesarean section have nearly three times the risk of adverse neonatal outcomes (OR = 2.9 (1.5 - 5.4);  $p = 0.001$ ) (**Table 3**).

**Table 3.** Obstetric factors and history associated with adverse neonatal outcomes (unadjusted analysis, N = 234).

Variable	Categories	Adverse Outcomes (n)		OR [IC 95%]	p-value
		Yes	No		
Parity	1 - 3	47	162	1	-
	>4 (grand multiparous)	7	2	6.0 (1.2 - 29.6)	<b>0.027</b>
	0 (nulliparous)	10	15	2.3 (1.0 - 5.5)	<b>0.048</b>
Medical History	No	48	150	1	-
	Yes	36	0	4.2 (2.1 - 8.1)	<b>&lt;0.001</b>
Type of Medical History	HIV	14	2	5.7 (1.2 - 27.1)	<b>0.027</b>
	Hypertension	6	2	3.9 (0.8 - 18.7)	<b>0.089</b>
	Others (diabetes, sickle cell disease, hepatitis B, etc.)	4	6	1.1 (0.3 - 3.9)	0.91
History of Cesarean	No	43	129	1	-
	Yes	41	21	2.9 (1.5 - 5.4)	<b>0.001</b>

### 3.2.3. Factors Related to Prenatal Care Associated with Adverse Neonatal Outcomes (Unadjusted Analysis)

The analysis highlights a close connection between the quality of prenatal care and the occurrence of adverse neonatal outcomes among geriatric women in Douala.

#### 1) Frequency of Prenatal Consultations

Women who did not have at least one prenatal consultation per month have a nine times higher risk of adverse neonatal outcomes (OR = 9.2;  $p < 0.001$ ). This underscores the crucial role of regular and frequent monitoring in the early detection of complications such as hypertension, infections, and intrauterine growth restriction (IUGR).

#### 2) Multiple Pregnancies

Although rare (3%), multiple pregnancies are associated with a 5.4-fold increased risk of adverse neonatal outcomes ( $p = 0.034$ ), primarily due to prematurity and fetal growth restriction.

#### 3) Supplementation and Prevention

The absence of iron and folic acid supplementation increases the risk of adverse outcomes by a factor of 7 ( $p = 0.018$ ). Similarly, women who did not receive intermittent preventive treatment for malaria (IPTp) have a doubled risk ( $p = 0.049$ ). These findings confirm the importance of preventive measures in reducing neonatal morbidity.

#### 4) Calcium and Aspirin

The lack of calcium supplementation is a significant risk factor (OR = 4.1;  $p < 0.001$ ), possibly related to preeclampsia and fetal growth restriction. In contrast, the prescription of low-dose aspirin does not show a significant effect ( $p = 0.69$ ), probably due to the small number of affected individuals.

#### 5) Pathologies Discovered During Pregnancy

Patients who developed an intercurrent pathology during pregnancy have a 3.5-

fold increased risk of adverse neonatal outcomes ( $p < 0.001$ ). Gestational hypertension appears as the dominant factor (OR = 4.8;  $p < 0.001$ ), confirming its major role in perinatal morbidity and mortality (**Table 4**).

**Table 4.** Obstetric factors and history associated with adverse neonatal outcomes (unadjusted analysis, N = 234).

Variable	Categories	Adverse Outcomes		OR [IC 95%]	p-value
		Yes	No		
Prenatal Visit/Month	Yes	68	156	1	-
	No	16	4	9.2 (2.9 - 28.7)	<0.001
Multiple Pregnancy	No	76	151	1	-
	Yes	8	0	5.4 (1.1 - 26.8)	0.034
Iron + Folic Acid Supplementation	Yes	71	154	1	-
	No	13	2	7.0 (1.4 - 35.5)	0.018
IPT (Malaria Prevention)	Yes	72	147	1	-
	No	12	9	2.2 (1.0 - 5.0)	0.049
Low-Dose Aspirin	Yes	5	14	0.8 (0.3 - 2.4)	0.69
Calcium	Yes	40	129	1	-
	No	44	27	4.1 (2.1 - 8.0)	<0.001
Pathology Discovered During Pregnancy	No	48	138	1	-
	Yes	36	18	3.5 (1.8 - 6.8)	<0.001
Type of Pathology	Hypertension	22	12	4.8 (2.0 - 11.2)	<0.001
	Malaria	4	3	1.8 (0.4 - 8.3)	0.41
	Diabetes	1	1	-	-
	Hepatitis B	2	2	-	-

### 3.2.4. Independent Determinants Associated with Adverse Neonatal Outcomes (Final Multivariate Adjusted Model)

After adjusting for confounding variables, the factors independently associated with adverse neonatal outcomes are as follows:

#### 1) Maternal Age $\geq 40$ Years

Women aged 40 or older have a 2.4 times higher risk ( $p = 0.012$ ). This association reflects the vascular and placental fragility associated with aging.

#### 2) Extreme Parity

Extremes of parity were defined as nulliparity (no previous delivery) and grand multiparity (five or more previous deliveries), both associated with higher neonatal risk. Both nulliparity and grand multiparity emerge as independent factors (OR = 2.7;  $p = 0.008$ ), indicating that obstetric extremes (first or many pregnancies) expose individuals to increased perinatal morbidity (prematurity, asphyxia, intra-uterine fetal death).

#### 3) Medical History

Patients with chronic hypertension, HIV, or diabetes have a fourfold increased risk of adverse neonatal outcomes (OR = 3.9;  $p < 0.001$ ). These conditions disrupt placental perfusion and impair fetal growth and vitality.

#### 4) History of Cesarean

A previous cesarean remains an independent factor (OR = 2.1;  $p = 0.024$ ), indicating persistent obstetric fragility (placenta previa, placental abruption, uterine rupture, urgent extraction).

#### 5) Quality of Prenatal Care

Women who have not had at least one prenatal consultation per month have a 6.5 times higher risk of adverse neonatal outcomes ( $p < 0.001$ ). This factor, the most powerful in the model, illustrates the crucial importance of regular monitoring in detecting and preventing complications.

#### 6) Supplementation

The absence of iron-folic acid (OR = 4.8;  $p = 0.017$ ) and calcium (OR = 3.2;  $p = 0.003$ ) significantly increases neonatal risk, emphasizing the importance of systematic supplementation in preventing anemia, growth restriction, and preeclampsia.

#### 7) Intercurrent Pathologies

The occurrence of a pathology during pregnancy, mainly gestational hypertension or malaria, increases the risk of adverse outcomes by 3.7 times ( $p < 0.001$ ). These conditions directly compromise placental perfusion and fetal vitality.

#### 8) Multiple Pregnancies

Twin pregnancies represent a major independent factor (OR = 5.0;  $p = 0.037$ ), confirming the increased risk of prematurity, growth restriction, and neonatal distress (Table 5).

**Table 5.** Independent factors associated with adverse neonatal outcomes among geriatric pregnant women in Douala (Final multivariate adjusted model, N = 234).

Variable	Reference Category	OR [IC 95%]	p-value
<b>Maternal age <math>\geq 40</math> years</b>	<40 years	2.4 (1.2 - 4.8)	<b>0.012</b>
<b>Nulliparity or grand multiparity</b>	Parity 0 or >5	2.7 (1.3 - 5.8)	<b>0.008</b>
<b>Medical history (hypertension, HIV, diabetes)</b>	None	3.9 (1.9 - 8.0)	<b>&lt;0.001</b>
<b>History of cesarean section</b>	No	2.1 (1.1 - 4.0)	<b>0.024</b>
<b>Prenatal consultations &lt; 1/month</b>	$\geq 1$ /month	6.5 (2.4 - 17.4)	<b>&lt;0.001</b>
<b>Lack of iron and folic acid supplementation</b>	Yes	4.8 (1.3 - 17.3)	<b>0.017</b>
<b>Lack of calcium supplementation</b>	Yes	3.2 (1.5 - 6.8)	<b>0.003</b>
<b>Intercurrent pathology during pregnancy (hypertension, malaria, diabetes)</b>	None	3.7 (1.8 - 7.6)	<b>&lt;0.001</b>
<b>Multiple pregnancy</b>	Single	5.0 (1.1 - 22.4)	<b>0.037</b>
<b>Single marital status</b>	Married	1.4 (0.7 - 2.8)	0.31
<b>Primary education level</b>	Secondary/Higher	1.6 (0.7 - 3.8)	0.22

The main independent factors for adverse neonatal outcomes among geriatric women in Douala are:

- Maternal age  $\geq 40$  years.
- Extremes of parity (nulliparous or grand multiparous).
- Medical and obstetric history.
- Insufficient prenatal care.
- Lack of supplementation.
- Intercurrent pathology and multiple pregnancies.

## 4. Discussion

The present study highlights the multifactorial complexity of adverse neonatal outcomes among geriatric pregnant women in Douala. Multivariate analysis reveals that maternal age  $\geq 40$  years, extremes of parity, medical comorbidities, quality of prenatal care, nutritional supplementation, intercurrent pathologies, and multiple pregnancies are independent determinants of neonatal morbidity and mortality.

### 4.1. Maternal Aging, Marital Status, Educational Level and Neonatal Risk

The significant association between advanced maternal age and adverse neonatal outcomes (OR = 2.4;  $p = 0.012$ ) confirms the international literature. Women over the age of 40 exhibit major physiological alterations: vascular stiffness, reduced placental perfusion, and increased chromosomal abnormalities affecting fetal growth and vitality [8]-[10]. Studies conducted in Nigeria [11], Ghana [12], and Cameroon [13] also report an elevated risk of prematurity, asphyxia, and intrauterine fetal death beyond 40 years. According to the WHO, advanced maternal age doubles the risk of perinatal mortality, regardless of the level of obstetric care [14]. These findings are consistent with our results and underscore that maternal aging is a biological marker of fetal vulnerability. While marital status and educational level were associated with neonatal outcomes in unadjusted analyses, these associations did not remain significant after multivariate adjustment, suggesting that their influence is largely mediated by socioeconomic conditions and the quality of prenatal care.

### 4.2. Extreme Parity and Obstetrical Fragility

Nulliparous women and grand multiparas have an increased risk (OR = 2.7;  $p = 0.008$ ). In older nulliparous women, the cervix is often rigid, labor is longer, and instrumental deliveries are more frequent, exposing the newborn to hypoxia [15]. In grand multiparas, uterine distension and presentation anomalies increase the likelihood of acute fetal distress and iatrogenic prematurity [16]. Ethiopian and Ghanaian studies have shown that high multiparity is associated with two to three times higher perinatal morbidity compared to intermediate parity [17] [18].

### 4.3. Medical Comorbidities and Obstetric History

In the adjusted model, medical history was treated as a composite variable, reflecting the cumulative impact of chronic maternal conditions rather than each disease individually. Hypertension impairs uteroplacental perfusion, promoting intrauterine growth restriction (IUGR) and intrauterine fetal death (IUFD) [19]. Similarly, HIV positivity is associated with an increased risk of prematurity and low birth weight, regardless of antiretroviral treatment [20]. Our results align with those of Mboudou *et al.* [21] in Yaounde, who found a 22% prevalence of neonatal complications in hypertensive older mothers. A history of cesarean section also doubles the neonatal risk (OR = 2.1;  $p = 0.024$ ), likely due to the increased frequency of placental anomalies (placenta previa, placental abruption) and emergency extractions [22].

### 4.4. Quality of Prenatal Care and Supplementation

The absence of monthly prenatal care increases the risk of neonatal complications sixfold ( $p < 0.001$ ), corroborating the observations of Tchente Nguetack *et al.* [23] in Cameroon and Adegbola *et al.* [24] in Nigeria. Insufficient care prevents the early detection of gestational pathologies and nutritional deficiencies. Additionally, the lack of iron, folic acid, and calcium supplementation significantly increases neonatal risk (OR = 3 - 5). Iron and folic acid prevent maternal anemia, reducing the risk of fetal growth restriction and asphyxia [25], while calcium decreases the occurrence of preeclampsia and intrauterine growth restriction (IUGR) [26]. These findings reinforce the need for strict adherence to prenatal supplementation protocols in maternal health programs.

### 4.5. Intercurrent Pathologies and Multiple Pregnancies

Pathologies discovered during pregnancy (gestational hypertension, malaria) are independent determinants (OR = 3.7;  $p < 0.001$ ). Gestational hypertension remains the leading cause of fetal morbidity and mortality in the sub-Saharan region, accounting for nearly 30% of severe obstetric complications [27]. Regarding malaria, it compromises placental perfusion and promotes prematurity and neonatal growth restriction [28]. Finally, multiple pregnancies increase the risk of adverse outcomes fivefold (OR = 5.0;  $p = 0.037$ ), supporting the conclusions of Bello *et al.* [29] in Nigeria and Foumane *et al.* [30] in Cameroon, where prematurity is the primary cause of neonatal morbidity in twin pregnancies.

### 4.6. Clinical and Public Health Implications

These findings highlight that poor neonatal outcomes in geriatric women are largely preventable. Most identified factors are modifiable: improving prenatal care, early detection of comorbidities, systematic supplementation, and anticipatory obstetric planning. Maternity services should adopt a multidisciplinary and anticipatory approach for these high-risk patients, involving obstetricians, pediatricians, internists, and nutritionists. Enhancing prenatal coverage and raising

awareness about family planning could ultimately reduce the perinatal morbidity and mortality associated with late pregnancies considerably.

## 5. Conclusion

This study, conducted in Douala with 234 pregnant women aged 35 and older, highlights the neonatal vulnerability associated with geriatric pregnancies in our context. Adverse neonatal outcomes such as prematurity, growth restriction, asphyxia, and perinatal deaths are common and result from a combination of obstetric, medical, and socio-economic factors. These findings emphasize that neonatal morbidity and mortality among geriatric women is not an unavoidable biological fate linked to age, but rather a reality significantly influenced by the quality of prenatal care. Prevention involves strengthening monthly prenatal follow-up, systematic supplementation, early detection of comorbidities, and coordinated obstetric-neonatal care for each high-risk pregnancy. Ultimately, geriatric pregnancy in Douala demands a multidisciplinary, proactive, and compassionate approach, centered on the mother and her child, in order to reduce preventable perinatal mortality and sustainably improve maternal and neonatal health in Cameroon.

## Author Contributions

All authors contributed to the development of this work.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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