Scientific Research Publishing

Open Journal of Obstetrics and Gynecology, 2025, 15(10), 1670-1677
https://www.scirp.org/journal/ojog
ISSN Online: 2160-8806
ISSN Print: 2160-8792

Childbirth after 40 Years: A Case-Control Study at the University Hospital Center of Libreville from January 1, 2023 to January 1, 2025

Jean Pierre Ngou Mve Ngou*, Kévin Ngou Mve Ngou, Marcel Methogo, Jean Daniel Zouakeu, Pélagie Bikie

Gynecology-Obstetrics Department, University Hospital Center of Libreville, Libreville, Gabon
Email: *ngoumvengou@gmail.com

How to cite this paper: Ngou Mve Ngou, J.P., Ngou Mve Ngou, K., Methogo, M., Zouakeu, J.D. and Bikie, P. (2025) Childbirth after 40 Years: A Case-Control Study at the University Hospital Center of Libreville from January 1, 2023 to January 1, 2025. *Open Journal of Obstetrics and Gynecology*, **15**, 1670-1677.
https://doi.org/10.4236/ojog.2025.1510140

Received: September 11, 2025
Accepted: October 12, 2025
Published: October 15, 2025

Abstract

Objective: To evaluate the frequency, clinical characteristics, and maternal and perinatal outcomes of childbirth among women aged 40 and above at the University Hospital Center of Libreville. **Patients and Method:** We conducted a two-year retrospective case-control study including 377 deliveries among women aged ≥40 and over compared with 530 randomly selected deliveries among women aged 20 to 34 years at the same institution. Associations were assessed using chi-square tests with a significance threshold of $p < 0.05$. **Result:** Of 11,771 deliveries, 377 involved women aged ≥40 (3.2%). Most were multiparous (49.1% vs. 40.9% in controls, $p < 0.02$). Dysfunctional labor occurred more often in older women (13.0% vs. 11.5%, $p < 0.05$). Instrumental extractions (11.1% vs. 6.4%, $p < 0.01$) and cesarean delivery (16.2% vs. 12.1%, $p = 0.07$) were more frequent. Neonatal outcomes showed higher rates of low Apgar scores < 7 at 5 min (10.3% vs. 8.9%, p = 00.4), congenital anomalies (2.1% vs. 0.5%) and perinatal mortality (3.44% vs. 1.51%). **Conclusion:** Childbirth after 40 years remains a high-risk obstetric event, associated with increased dysfunctional labor, operative deliveries, and neonatal morbidity. Strengthened early prenatal care, with close obstetric-pediatric collaboration, is essential to improve outcomes.

Keywords

Age ≥ 40 Years, Late Pregnancy, Dystocia, Maternal-Fetal Prognosis

1. Introduction

Over recent decades, the number of pregnancies at advanced maternal age has increased worldwide, driven by sociocultural changes delaying motherhood and ad-

vances in assisted reproductive technologies [1] [2]. A multicenter study in Israel reported that birth rates among women aged 35 - 39 years and 40 - 44 years increased by 272% and 318% respectively over four decades, with advanced maternal age linked to higher risks of preeclampsia, prematurity, and cesarean delivery [3]. Although such pregnancies are considered high risk, some authors emphasize that age alone does not account for adverse outcomes [4].

In Sub-Saharan Africa and particularly in Gabon, the frequency and outcomes of childbirth at age ≥ 40 remain poorly documented [5]. African series report variable frequencies ranging between 1.02% and 1.87%, values that are markedly lower than those observed in industrialized countries [6]. The objective of this study was to evaluate the frequency, clinical characteristics and maternal-fetal prognosis of these deliveries considered high-risk, especially in our context.

2. Patients and Methods

2.1. Study Design and Setting

We conducted a retrospective, descriptive, and comparative case-control study over two years (January 1, 2023 to January 1, 2025) at the maternity unit of the University Hospital Center of Libreville, a referral hospital performing about 6000 deliveries annually and equipped with adult and neonatal intensive care units.

2.2. Population

Cases included all parturients aged ≥40 years with complete medical records who delivered at the hospital during the study period. Controls comprised 530 deliveries among women aged 20 - 34 years, randomly selected from the same period and institution. Inclusion and exclusion criteria were identical across groups except for maternal age.

2.3. Data Collection

Data were extracted from delivery registers and patient records. Variables included sociodemographic, parity, medical and obstetric history (hypertension, diabetes), prenatal consultations, fetal presentation, dysfunctional labor, mode of delivery, postpartum hemorrhage, maternal mortality, Apgar score, congenital anomalies, stillbirth, and early neonatal death.

2.4. Definitions

To remove any terminological ambiguity, the following terms were defined in the protocol:

- Dysfunctional labor: Arrest or slowdown of labor progression due to uterine inertia or cephalopelvic disproportion.
- Malpresentation: Non-cephalic fetal presentation (e.g., breech, transverse).
- Cesarean delivery: Delivery by abdominal route.
- Early neonatal death: Death between birth and day 7 of life.
- Fetal distress: Apgar score < 7 at 5 minutes or abnormal fetal heart rate requir-

ing intervention.

- Congenital anomalies: structural abnormalities diagnosed at postnatal examination and confirmed by imaging.

2.5. Seized Collection and Statistical Analysis

Data were analyzed using Epi Info 2010. Associations between maternal age and outcomes were tested with chi-square tests, with $p < 0.05$ considered significant. Multivariable logistic regression was not feasible due to missing individual-level data.

2.6. Ethical Considerations

Approval was obtained from the Gabon National Ethics Committee and the hospital administration. Patient confidentiality and anonymity were strictly maintained in line with ethical guidelines. Decree 00732/PR/MRSDT of September 15, 2008, fixing the composition and functioning of the National Ethics Committee on Scientific Research.

3. Results

Among 11,771 deliveries involved women aged ≥40 years (3.2%). Most were 40 - 42 years (80.6%). Multiparity was more frequent in cases (49.1% vs. 40.9%, $p < 0.02$, Table 1).

Table 1. Distribution of parturient according to parity.

Parity	Case		Control		p
	n	%	n	%	
Primiparous (P1)	4	1.1	34	6.4	<0.001
Pauciparous (P2 - P3)	39	10.3	98	18.5	<0.001
Multiparous (P4 - P6)	185	49.1	217	40.9	0.01
Large multiparous (>P7)	149	39.5	181	34.2	0.09
Total	377	100	530	100	

Table 2. Distribution of parturient according to the number of CPNs.

Parity	Case		Control		p
	n	%	n	%	
0 - 1 ANC	11	2.9%	11	2.1%	0.41
2 ANC	19	5.0%	42	7.9%	0.08
≥3 ANC	347	92.1%	477	90.0%	0.29
Total	377	100%	530	100%	

The number of antenatal consultations (ANCs) differed little between the groups; most women had attended at least three consultations ($p > 0.008$, Table 2).

3.1. Social, Occupational and Marital Status

Across both groups, most of the women were covered by health insurance. The majority were in paid employment and married; only 38.66% were single or in a consensual union (Table 3).

Table 3. Distribution of parturient according to the mode of delivery.

Mode of delivery	Case		Controls		p
	n	%	n	%	
Spontaneous vaginal birth	274	72.7	432	81.5	<0.001
Instrumental extractions	42	11.1	34	6.4	0.01
Upper way	61	16.2	64	12.1	0.07
Total	377	100	530	100	

3.2. Gynecological and Obstetric History

Women aged ≥40 years more often had a history of abortions (30.2%) or pelvic surgery (9.6%), including caesarean sections (6.4%) and other procedures (3.2% for cysts, fibroids or laparoscopic surgery). High blood pressure was slightly more common among women aged 20 - 34 (2.0% vs. 1.3%), whereas diabetes was more frequent after 40 (3.7% vs. 2.3%); neither difference reached statistical significance. Older women had more spontaneous abortions (65.8% vs. 48.4%) and fewer induced abortions (24.2% vs. 51.4%), a significant difference.

3.3. Presentation at the Maternity Unit and Clinical Examination

Only 59.7% of women aged 40 and over arrived at the maternity unit early, compared with 73.4% of younger women. They were more likely to present in advanced labor with full cervical dilatation (17.0% vs. 7.0%) or to deliver outside the facility (2.9% vs. 0.9%). There was no major difference in the pathologies detected at clinical examination.

3.4. Pregnancy Term and Fetal Presentation

Preterm births accounted for 9% of pregnancies in the older group and 16.8% in the younger group. Cephalic presentation was predominant (87.6% in women aged 40 - 52 and 86.4% in those aged 20 - 34). Breech presentations were slightly less common in the older group (11.1% vs. 12.9%). Malpresentations were comparable between groups (12.4% vs. 13.6%).

3.5. Labor and Delivery

Spontaneous vaginal delivery occurred more frequently in the 20 - 34 group (81.5%) than in women over 40 (72.7%), whereas instrumental deliveries were more common after 40 (11.6% vs. 6.4%). The rate of caesarean delivery was similar in both groups.

3.6. Postpartum Hemorrhage and Maternal Mortality

Postpartum hemorrhage occurred in 7.7% of the older women and 7.0% of the younger women, without significant difference. There was one maternal death (0.26%) in the group aged 40 and above, due to postpartum hemorrhage, and three deaths (0.56%) among younger women, due to vascular-renal syndromes (two eclampsia and one retroplacental hematoma).

3.7. Neonatal Status and Intensive Care Transfer

An Apgar score ≥ 7 was recorded in 90.0% of cases in both groups, indicating generally good neonatal outcomes. Among 368 live births to women aged ≥40, 17 newborns (4.6%) were transferred to intensive care for suspected maternal-fetal infection or acute fetal distress, compared with 3.2% of neonates born to younger women.

3.8. Malformation and Fetal Mortality

Eight cases of congenital malformations (2.1%) were identified in mothers aged ≥40 (including hydrocephalus, omphalocele, achondroplasia, anencephaly, cervical cystic hygroma, club foot and Potter's syndrome) compared with three cases (0.5%) in younger women. Early neonatal death or stillbirth was reported in 13 cases (3.44%) among the older mothers vs. eight cases (1.51%) in the 20 - 34 age group, and there were nine intra-uterine fetal demises (2.38%) in the older cohort.

4. Discussion

This study has the limits of a retrospective study based on data collection: urgently completed files with summary and poorly archived information.

During this study, we identified two main biases:

A. The selection bias: The Maternity of the University Hospital Center of Libreville is a reference maternity that receives a large number of high-risk pregnancies and dystocia deliveries from Libreville and the region. Generally, these parturients are directly admitted to the delivery room without having had adequate follow-up.

B. Incomplete files: The absence of certain variables in the files, parity, and mode of delivery, did not allow us to make a complete statistical analysis. Thus, some files were excluded from the study.

During this study period, we observed a frequency of 3.20% of deliveries in parturients aged 40 years and over. Our figure remains slightly high compared to those of the literature, which varies globally between 1.02% and 1.87% in African series. Foumsou *et al.* [7] in Tchad and Maleya *et al.* in Congo [8] found frequencies of 2.8% and 2.4% respectively. This difference is to be due to the recruitment of parturients admitted to our service who often have a high socio-economic level compared to the general population.

African series also report elderly parturients: 52 years for Samake *et al.* [9] in Côte d'Ivoire and 53 years for Ouattara *et al.* [10] in Burkina Faso.

We observed a large multiparous population (88.6% vs. 75.1%, $p < 0.01$) as shown by the study by Spellacy *et al.* [11].

Pregnancies after the age of 40 often occur in multiparous. 49.1% of our parturients have a parity between 4 and 6. If we consider the large multiparous (parity > 7), they represent 39.5% in our study. Tebeu *et al.* [12], in Cameroon, found 94.46% of multiparous in parturients aged 40 years or older.

Western studies have found a decrease in old primiparous, as in the Bellaisch-Allar [13] series. It must be understood that in these countries, success requires professional achievement, women freed from the fear of an unwanted pregnancy prefer to postpone the procreation project.

Our study found 9% of premature babies (term less than 37 weeks) in parturients aged 40 years and over. This rate is higher than that found by Denax *et al.* [14], 3.4%. Foix *et al.* [15] found 6.8% with a high risk of prematurity at the age of 35. On the other hand, for Andriamady *et al.* [16], the risk of prematurity is significantly increased by 23.1% among parturients aged 40 years and over.

Childbirth took place spontaneously in 72.7% of cases in parturients aged 40 and over vs. 81.5% in those under 40. The difference is statistically significant. Parturients aged 40 and over have a higher risk of giving birth by caesarean section or instrumental extraction than parturients in the group aged 20 to 34, $p < 0.05$.

Cesarean delivery is much more common in parturients aged 40 years or older (16.2%) compared to 12.08% in parturients aged 20 to 34 years, but the difference is not statistically significant ($p > 0.05$). The rate of caesarean delivery is particularly high in this population since it varies according to the authors between 15 and 40% with even higher values in the elderly primiparous, where it reaches 50 or even 70% in the study of Kinenkinda *et al.* [17].

No difference was observed in the occurrence of postpartum hemorrhages in both groups of parturients (7.7% vs. 7.0%). Some authors describe a frequency of delivery hemorrhages after 40 years due to the poor quality of the uterine muscle. The study by Tebeu *et al.* [18] reports a high frequency of hospitalization following childbirth (48.61%) of deliveries.

The thromboembolic risk is increased in the literature, especially if there is a predisposition to the type of superficial or deep thrombophlebitis as in the study of Essiben *et al.* [19]. Lehmann *et al.* [20] found a twice as high risk of postpartum hemorrhage and an infectious risk (endometriosis, pyelonephritis) seven times greater than in the control group. Our study did not find thromboembolic diseases and postpartum infections. We systematically use a postpartum antibiotic cover.

The maternal death rate of parturients aged 40 years or older in our study is low, 0.26%. Owono Etoundi *et al.* [21] report a rate of 1.1%.

5. Conclusion

The delivery of a woman aged 40 and over is at high risk. Pregnancy follow-up must be rigorous and early and require obstetric-pediatric collaboration to limit the complications associated with this delivery.

Conflicts of Interest

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

References

[1] Berland, M. (1989) Les grossesses après 40 ans, surveillance et accouchement. *Revue Française de Gynécologie et d'Obstétrique*, **84**, 875-877.

[2] Maillet, R. and Martin, A. (2005) Grossesse et accouchement à un âge avancé. *Genesis*, **102**, 7-10.

[3] Hochler, H., Lipschuetz, M., Suissa-Cohen, Y., Weiss, A., Sela, H.Y., Yagel, S., *et al.* (2023) The Impact of Advanced Maternal Age on Pregnancy Outcomes: A Retrospective Multicenter Study. *Journal of Clinical Medicine*, **12**, Article 5696. https://doi.org/10.3390/jcm12175696

[4] Nyongesa, C., Kamara, L., Mpundu Kalala, C., *et al.* (2023) Maternal and Perinatal Outcomes among Women of Advanced Maternal Age in Low Resource Settings: A Multicountry Cohort Study. *Frontiers in Global Women's Health*, **4**, Article 1180036.

[5] Direction Générale de la Santé (2021) Gabon enquête démographique et de santé. https://www.sante.gouv.ga

[6] Saccone, G., Gragnano, E., Ilardi, B., Marrone, V., Strina, I., Venturella, R., *et al.* (2022) Maternal and Perinatal Complications According to Maternal Age: A Systematic Review and Meta-Analysis. *International Journal of Gynecology & Obstetrics*, **159**, 43-55. https://doi.org/10.1002/ijgo.14100

[7] Foumsou, L., Gabkika, B.M., Damtheou, S., *et al.* (2017) Le pronostic materno-foetal des parturientes avec grossesse non suivie admises à la maternité de l'hôpital de la mère et de l'enfant de N'djamena. *Journal de la Société Africaine de Gynécologie et d'Obstétrique*, **18**, 21-26.

[8] Maleya, A., Kakudji, Y.K., Mwazaz, R.M., Nsambi, J.B., Ngwej, H.I., Mukuku, O., *et al.* (2019) Issues materno-fœtales des grossesses non suivies à Lubumbashi, République Démocratique du Congo. *Pan African Medical Journal*, **33**, 2-15. https://doi.org/10.11604/pamj.2019.33.66.18528

[9] Samake, A., Traore, S.O., Keita, M., *et al.* (2020) Grossesses non suivies: Pronostic maternel et périnatal au centre de santé de référence de la commune V du district de Bamako. *Health Sciences and Diseases*, **21**, 74-77.

[10] Ouattara, A., Diallo, A., Bako, N., *et al.* (2024) Épidémiologie des hémorragies du postpartum immédiat dans le département de gynécologie-obstétrique du centre hospitalier universitaire de Bogodogo (CHU-B) Ouagadougou Burkina-Faso. *Journal de la Société Africaine de Gynécologie et d'Obstétrique*, **25**, 41-45.

[11] Spellacy, W., Miller, S.J. and Winnegar, A. (1986) Pregnancy Outcome after 40 Years of Age. *Obstetrics & Gynecology*, **68**, 452-454.

[12] Tebeu, P., Kouam, L., Nghonguia, *et al.* (2007) Étude cohorte historique de l'accouchement à 40 ans et plus à Yaoundé Cameroun. *Revue Médicale de Liège*, **62**, 509-514.

[13] Bellaisch-Allar, J. (2000) Grossesse et accouchement après 40 ans. In: *Encyclopédie Médicale Chirurgicale*, Elsevier, 1-10.

[14] Denax, A., Gache, P., Mautalen, F., Servaud, M., Philippi, D., Alain, J. and Tabaste, J. (1989) Grossesse et accouchement après 40 ans. *Journal de Gynécologie, d'Obstétrique et de Biologie de la Reproduction*, **18**, 213-221.

[15] Foix, H., Ancel, P. and Blondel, B. (2000) Facteurs de risques de prématurité en France et comparaison entre prématurité spontanée et prématurité induite: Résultats de l'enquête

nationale de 1995. *Journal de Gynécologie, d'Obstétrique et de Biologie de la Reproduction*, **29**, 55-65.

[16] Andriamady, R.C.L., Rasamoelisoa, J.M., Rakotonoel, H., Ravaonarivo, H., Ranjalahy, R.J. and Razanamparany, M. (1999) Les accouchements prématurés à la Maternité de Befelatanana, CHU d'Antananarivo en 1997. *Archives de l'Institut Pasteur de Madagascar*, **65**, 93-95.

[17] Kinenkinda, X., Mukuku, O., Chenge, F., Kakudji, P., Banzulu, P., Kakoma, J., *et al.* (2017) Césarienne à Lubumbashi, République Démocratique du Congo II: Facteurs de risque de mortalité maternelle et périnatale. *Pan African Medical Journal*, **26**, 4-7. https://doi.org/10.11604/pamj.2017.26.208.12148

[18] Tebeu, P., Major, A., Ludick, F., Obam, M., Kouam, L. and Doh, A. (2004) Devenir de l'accouchement aux âges extrêmes de la vie reproductive. *Revue Médicale de Liège*, **59**, 455-459.

[19] Essiben, F., Belinga, E., Ndoua, C.C., *et al.* (2020) La césarienne en milieu à ressources limitées: Evolution de la fréquence, des indications et du pronostic à dix ans d'intervalle. *Health Sciences and Diseases*, **21**, 26-32.

[20] Lehmann, D.K. and Chism, J. (1987) Pregnancy Outcome in Medically Complicated and Uncomplicated Patients Aged 40 Years or Older. *American Journal of Obstetrics and Gynecology*, **157**, 738-742. https://doi.org/10.1016/s0002-9378(87)80041-8

[21] Owono Etoundi, P., Metogo Mbengono, A.J., Tchokam, L., *et al.* (2017) Complications obstétricales admises en réanimation: Épidémiologie diagnostic et pronostic 2017. *Health Sciences and Diseases*, **18**, 1-5.