

Profile of Full-Term Births in Maternity Wards of Public Hospitals in Douala Cameroon

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Abstract

Introduction: Pregnancy as much as childbirth constitutes a risky situation, potentially fraught with sometimes dramatic complications: maternal death. **Objective:** We conducted this study with the aim of establishing the profile of those giving birth in our context with the aim to anticipate operationally in the future on morbidity but more on maternal deaths. **Methodology:** We conducted, using a structured questionnaire, a prospective descriptive study in representative maternity wards in the city of Douala; the study variables were socio-economic, anthropometric, obstetrical and clinical. Statistical analyses were carried out with CS Pro 7.3 and SPSS version 25.0 software. The Student, Chi-square and Fischer tests were used to compare the means of the variables and the percentages. **Results:** We recruited 305 births for our study. The average age of our births was 28.7 years \pm 6.1 with an average height of 161.6 cm \pm 5.06; an average body mass index at the start of pregnancy of 28.0 kilograms/square meter and 31.3 kilograms/square meter at delivery; the average weight gain was 8.4 g \pm 5.37; an average gestation of 2.84 \pm 1.90; an average parity of 2.2 \pm 2.1 with an average birth interval of 27.7 months \pm 23.7. The average gestational age was 39.2 weeks \pm 1.21 with pregnancy pathology dominated by malaria; 85.9% began their prenatal follow-up before the 14th week of amenorrhea. **Conclusion:** The profile of childbirth in urban Cameroon does not seem potentially dystocic compared to that of the same regional and racial area.

Keywords

Profile, Delivery, Term, Malaria, Douala

1. Introduction

Both pregnancy and childbirth constitute a risky situation, potentially fraught with sometimes dramatic complications: maternal death. Giving birth in sub-Saharan Africa is 50 times more risky than in the West. In fact, the maternal mortality rate (MMR) on a global scale is estimated at 223 per 100,000 live births and 30 million women also suffer from illnesses and disabilities occurring following improper parturition. The majority of deaths are found in developing countries, particularly in sub-Saharan Africa, which alone represents 66% of cases [1]. In Cameroon, the MMR in 2018 was 406 per 100,000 live births [2]. A quarter of these disappearances occur during labor or in the hours following birth and 3 out of 5 cases could have been avoided by access to medical care and appropriate hygienic conditions during childbirth [3] [4].

Added to this individual drama is the social drama: these deaths occur among women of childbearing age who not only leave behind numerous orphans and broken families, but also represent a significant loss of work capacity and productivity.

Maternal mortality reflects only part of the problem. It is estimated that 15 times more women present with serious complications, some of which will leave after-effects or handicaps which frequently lead to social and family rejection of the woman (e.g. vesico and/or rectovaginal fistulas) [1].

Over time, the obstetric offer has diversified greatly, through the public or private status of the structures, the improvement of the technical platform and the quality of health personnel. Hospital delivery is associated with a better feto-maternal prognosis. Several strategies have been put in place to facilitate access to emergency medical care such as the multiplication of health services, continuing training of staff, and the practice of refocused antenatal consultations (ANC) [5] [6].

In many African hospitals, the system for reporting pathologies and deaths is very deficient. More than three decades after the Nairobi Conference, it is appropriate to ask whether maternal health has improved in developing countries, particularly in Africa and more specifically in Cameroon [7] [8] [9] [10] [11].

The objective of our work was to describe the profile of pregnant women in urban Cameroon and to look for risk factors linked to maternal deaths in order to later develop operational strategies for significantly reducing these deaths.

2. Material and Methods

2.1. Type and Location of Study

We conducted a multicenter prospective descriptive study in some maternity wards of hospitals in the city of Douala, including the Laquintinie Hospital of Douala, the General Hospital of Douala, the Deido District Hospital, the Nylon

District Hospital, Bonassama District Hospital.

The multi-community nature of the patient population of these hospitals is fairly representative of the national population, thus justifying their choice as a study sites.

2.2. Study Period

We conducted this study from January 3, 2020 to April 30, 2020; *i.e.* 4 months of recruitment.

2.3. Study Population

The target population consisted of any parturient or woman who had given birth in the hospitals in our study during the recruitment period.

2.4. Inclusion and Exclusion Criteria

Any consenting parturient or woman who had given birth and who had a well-completed documented follow-up was included.

Excluded were those whose follow-up was poorly or not documented, as well as those who did not consent.

2.5. Sampling

We carried out non-exhaustive consecutive sampling.

2.6. Administrative Process

We obtained authorization (Ethical Clearance No. 2144) from the institutional ethics committee of the University of Douala as well as research authorizations in the various hospitals.

2.7. Data Collection Procedure

In order to determine the maternal profile, a structured and pre-tested questionnaire was developed for this purpose. Mothers were interviewed upon admission to the maternity ward or within 48 hours of giving birth.

It included the following variables: Socio-demographic and socio-economic characteristics of full-term births in the city of Douala

2.8. Sociodemographic Data

- Maternal age;
- Ethnicity;
- Religion;
- Marital status;
- Place of residence.

2.9. Socio-Economic Data of the Household

- Level of education of the father and/or head of household;

- Mother's educational level;
- Fathers profession;
- Mother's profession.

Obstetrical and clinical profile of full-term births in the city of Douala.

2.10. Obstetric Profile

- Obstetric history;
 - Gravidity;
 - Parity;
 - History of spontaneous or induced miscarriages;
 - Weight and sex of other children;
 - History of uterine malformations;
 - History of intrauterine growth retardation;
 - History of fetal macrosomia;
 - History of fetal death in utero.
- Obstetric monitoring
 - The date of the last period;
 - The term of the pregnancy which was calculated in weeks of amenorrhea from the date of the last period (by questioning the mother/pregnancy monitoring diary) with the Naegle formula (gestational age = date of the last period +7 days - 3 months) or from the ultrasound in the first trimester (before the 14th week). In the event of discrepancy between the two estimates, the gestational age calculated from the date of the ultrasound was used [12].
 - The inter-reproductive space;
 - The start date of antenatal consultations;
 - The place for antenatal consultations;
 - The number of antenatal consultations;
 - The assessments carried out (biological and morphological);
 - Anti-malaria and anti-anemia prophylaxis during pregnancy.
 - Pathologies during pregnancy;
 - Diet during pregnancy: number of meals before pregnancy, number of meals during pregnancy, number of added meals.
- Toxic habits during pregnancy
 - Alcohol consumption;
 - Tobacco;
 - Exposure to organophosphates;
 - Taking traditional potions.

2.11. Clinical Profile

- Anthropometric data of the pregnant woman
 - Weight at the beginning and end of pregnancy (on personal scale or examination of the monitoring log);
 - Weight gain;

- Maternal height (national identity card as reference);
- Body mass index (BMI) at the beginning and end of pregnancy calculated and expressed in kilogram (Kg)/square meter (m²).
- Medical history
 - High blood pressure;
 - Chronic kidney disease;
 - Respiratory disorders;
 - Thrombophilia;
 - Autoimmune diseases;
 - Hepatitis B;
 - Hepatitis C;
 - Human Immunodeficiency Virus (HIV) Infection.
- Surgical history
 - Pelvic surgery, cesarean section and indications.
- Vital parameters on admission
 - Blood pressure measured in mm Hg using an electronic blood pressure monitor;
 - Heart rate measured using the same electronic blood pressure monitor;
 - Respiratory frequency in cycles/minutes;
 - Axillary temperature in degrees/Celsius (°C).
- Obstetric examination
 - Fundal height;
 - Abdominal circumference in centimeters using an inextensible tape measure
 - Presentation;
- Progress of childbirth;
 - Delivery routes;
 - Indications if cesarean section.

Statistical analyzes were carried out with CS Pro 7.3 and SPSS version 25.0 software. Student, Chi-square and Fischer tests were used to compare the means of the variables and the percentages.

3. Results

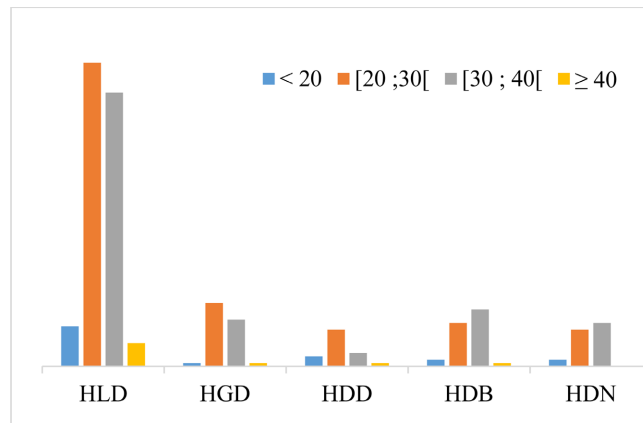
Obstetric profile

Gestational age

We recruited 305 births during our study period. The average age of pregnant women and those who gave birth in our sample was 28.7 years \pm 6.1 with extremes of 16 and 53 years and a median value of 29 years. More than half of those giving birth were aged between 20 and 30 years old regardless of the hospital (**Figure 1**) and 3 out of ten giving birth had a gestational age between 38 and 39 weeks of amenorrhea. The mean gestational age was 39.2 weeks \pm 1.21 with a median of 39.2 weeks (**Figure 2**).

In our series, primigravidas were in majority and the average gestation was 2.84 \pm 1.90 with extremes of 1 and 11. Regarding parity, more than a third of

those giving birth were primiparous (43.9%) with an average parity of 2.2 ± 2.1 (Table 1) and spontaneous miscarriages (60.7%) represented the majority obstetric history (Table 2).



HLD: Laquintine Hospital Douala, HGD: General Hospital Douala, HDD: Deido District hospital, HDB: Bonassama District hospital, HDN: Nylon District hospital.

Figure 1. Distribution of births according to age range.

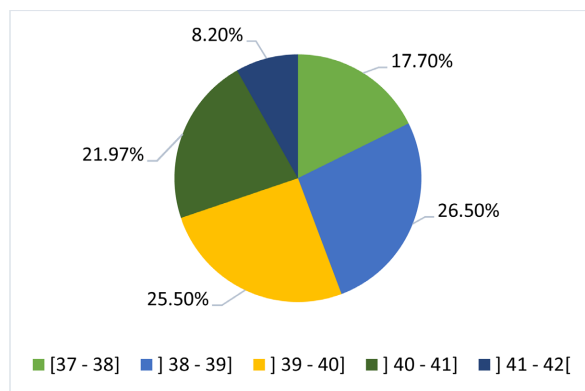


Figure 2. Distribution of births according to gestational age.

Table 1. Distribution of full-term births according to gestation and parity.

Variables	Number	Percentages (%)
Gestation		
[1]	121	39.6
[2 - 3]	118	38.6
[4 - 5]	62	20.6
≥6	4	1.2
Parity		
[1]	134	43.9
[2 - 3]	117	38.3
[4 - 5]	41	13.4
≥6	13	4.2

The average birth interval was 27.7 months \pm 23.7 with extremes of 3 months and 34 months. The majority of those giving birth had an inter-birth interval greater than 24 months (**Table 3**).

Obstetric Follow-up

The majority of those who gave birth had had more than 3 antenatal consultations (84.2%) and 85.9% of those who were followed began antenatal visits before 14 weeks. More than three out of ten women who gave birth did their prenatal consultations in private health facilities (34%) (**Table 4**).

Table 2. Distribution of full-term deliveries according to obstetric history.

Variables	Number (N = 117)	Percentages (%)
Premature births	14	11.9
Spontaneous miscarriages	71	60.7
Voluntary interruptions	24	20.6
Fetal death in utero	8	6.8

Table 3. Distribution of full-term births according to inter-birth space.

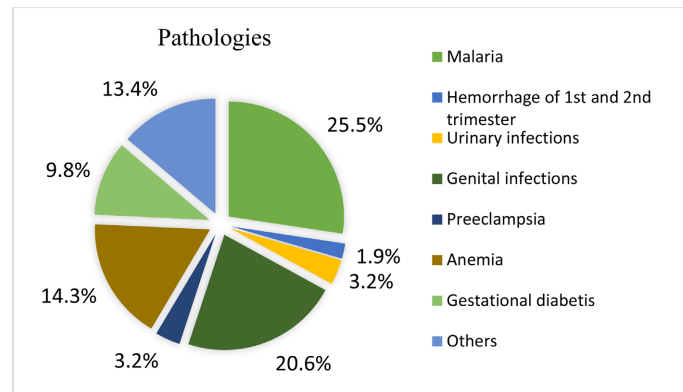
Variables	Number	Percentages (%)
Inter-birth space (in months) (N = 166)		
<6	30	18.0
[6 - 12]	12	7.2
[12 - 24]	21	12.6
\geq 24	103	62.0

Table 4. Distribution of births according to the number, time and location of antenatal consultations.

Variables	Number	Percentages (%)
Number of antenatal consultations		
None	10	3.2
<4	38	12.4
\geq 4	257	84.2
Time of beginning of antenatal consultations (in weeks of amenorrhea)		
\leq 14	262	85.9
>14	43	14.0
Site of antenatal consultations		
1 st category	16	5.2
2 nd category	98	32.1
3 rd category	0	0.0
4 th category	67	21.9

Continued

5 th category	14	4.5
6 th category	6	1.9
Private health facility	104	34.0



Others*: Gestational hypertension (1.3%), threatened abortion (4.5%), threatened premature delivery (1.6%).

Figure 3. Distribution of births according to pregnancy pathologies identified.

Table 5. Distribution of births according to doses of antimalarial prophylaxis received.

Variables	Number	Percentages
Antimalarial prophylaxis		
None	21	6.8
<3	102	33.4
≥3	182	59.7

Pathologies in pregnancy

The pathologies recorded during pregnancy were dominated by malaria (25.5%), genital infections (20.6%), anemia (14.3%), hemorrhages of the 1st and 2nd trimester (13.4%), and gestational diabetes (9.8%) (Figure 3) and nearly 6 in ten women received at least three doses of intermittent preventive antimalarial treatment (Table 5).

In our study, 81.6% of those giving birth had serological assessments during pregnancies with positive serologies of 6% for Human Immunodeficiency Virus (HIV) and toxoplasmosis (Table 6).

On ultrasound, the diagnosis of intrauterine growth retardation was suggested in 2.3% of cases compared to 19.6% of cases of macrosomia (Table 7).

The average height was 161.6 ± 5.06 cm with extremes of 150 cm and 181 cm. The majority group was that of 160 - 170 cm. The average weight gain was 8.4 g ± 5.37 with an average body mass index, at the start of pregnancy of 28.0 kilogram/square meter and 31.3 kilogram/square meter at delivery with a median of 30.6 and extremes of 19.5 and 51.4. Overweight births (BMI 25 - 30) were predo-

minant and those with grade 1 obesity (BMI 30 - 35) were in the majority (**Table 8**).

Table 6. Distribution of births according to positive serologies recorded.

Variables	Number	Percentages (%)
Serologies	249	81.6
Positive serologies	50	20.0
TPHA/VDRL	5	2.0
Toxoplasmosis	15	6.0
Rubella	3	1.2
Hepatitis B	12	4.8
HIV	15	6.0
Hepatitis C	0	0.0

Table 7. Distribution of births according to fetal weights estimated on 3rd trimester ultrasound.

Weight (g)	Number	Percentages (%)
<2500	7	2.3
2500 - 4000	200	65.5
> 4000	60	19.6

Table 8. Distribution of anthropometric data of full-term deliveries.

Variables	Number	Percentages (%)
Height of mother (in cm)		
≤150	3	0.9
[150 - 160]	101	33.1
[160 - 170]	194	63.6
[170-180]	6	1.9
>180	1	0.3
BMI at the beginning of pregnancy (Kg/m ²)		
<18.5	6	1.9
[18.5 - 25]	76	25.0
[25 - 30]	140	45.9
[30 - 35]	53	17.3
[35 - 40]	22	7.2
>40	8	2.6
Weight gain (Kg)		
≤9	219	71.8
[9 - 12]	37	12.1
>12	49	16.0

Continued

BMI before birth		
<18.5	0	0
[18.5 - 25]	36	11.8
[25 - 30]	82	26.9
[30 - 35]	125	41.0
[35 - 40]	44	14.4
>40	18	5.9

Table 9. Distribution of births according to medical history.

Variables	Number (N = 36)	Percentages (%)
Medical history		
HIV	15	41.6
Gastro-eosophageal reflux	12	33.3
Uterine fibroma	4	11.1
Asthma	3	0.9
Hemorrhoidal disease	2	0.6
Gestational toxicomania	2	0.6
Diabetis	1	0.3
Sickle cell	1	0.3
Arterial hypertension	1	0.3
Others*	5	1.6

Others* = Genital infection: 3 cas (0.7%) Extra-uterine pregnancy: 1 cas (0.3%) Deafness: 1 cas (0.3%).

Table 10. Distribution of births according to surgical history.

Variables	Number (N = 60)	Percentages (%)
Surgical history		
Cesarean section	55	18.0
Laparotomy	2	0.7
Ovarian cystectomy	1	0.3
Myomectomy	1	0.3
Mastectomy	1	0.3

More than 7 out of 10 women were admitted for lumbopelvic pain (**Table 8**)

In our series, HIV infection was the most recurrent medical history. Genital infection: 3 cases (0.7%) Ectopic pregnancy: 1 case (0.3%) Deafness: 1 case (0.3%) (**Table 9**).

In our sample, cesarean section was performed in 18.0% of our pregnant women during previous deliveries (**Table 10**).

Our survey revealed that 15% of those giving birth continued to consume alcohol during pregnancy, 2.3% were exposed to passive smoking. 10.1% of those giving birth used herbal medicine (**Table 11**)

The spontaneous delivery rate was the highest at 57.0% (**Table 12**).

Emergency cesarean sections were in majority (62.6%), dominated by acute fetal suffering (17.5%) (**Table 13**).

Table 11. Distribution of births according to toxicological history.

Variables	Number	Percentages (%)
Toxicological history		
Alcohol consumption	46	15.0
Tobacco use	7	2.3
Passive smoking	7	
Use of herbal medicine	31	10.1

Table 12. Distribution of births according to route of delivery.

Variables	Number	Percentages (%)
Route of delivery		
Spontaneous	174	57.0
Cesarean section	131	42.9

Table 13. Distribution of births according to cesarean section indications

Variables	Number	Percentages (%)
Emergency cesarean N = 82		
Acute fetal distress	23	17.5
Feto-pelvic disproportion	13	9.9
Intrapartum hemorrhage	11	8.3
Preeclampsia/Eclampsia	11	8.3
Obstructed presentation	08	6.1
Failed induction of labor	06	4.6
Stationary labor	05	3.8
Syndrom of pre-uterine rupture	05	3.8
Elective cesarean N = 49		
Surgical pelvis	16	32.6
Scarred uterus	25	51.0
Short inter-reproductive spaces	4	8.1
Polymyomatous uterus	2	4.0
Breech in a primigravid	2	4.0

4. Discussion

4.1. Socio-Demographic and Socio-Economic Characteristics of Term Delivery

During our study period, we recruited 305 eligible and consenting births in our context where early gestation and its corollary of abortions, multiparity and questionable gestational monitoring are all masks usually labeled to obstetrical practice in Africa in general, and sub-Saharan specifically.

Our findings are, as a whole, the polar opposite of this dull stamp.

4.1.1. Age

The average age in our series was 28.7 years \pm 6.1 with extremes of 16 and 53 years with a majority range (55%) of 25 - 35 and the opposite of other African series; notably Barkat *et al.* in 2007 in Morocco 27 \pm 0.4 years [13]; Ndiaye *et al* in Senegal 26.5 \pm 6 years [14] and Djadou *et al.* in Togo in 2005 25.7 \pm 5.9 years [15] but also Europeans including 30.5 years of Daoudi in France [16]. And however, they are close to the findings of de Chao *et al.* in 2019 28.3 \pm 3.8 years [11] and Yisak *et al.* in 2017 in Ethiopia 28 \pm 13 years [17].

If the West African environment of this work reported here is culturally conducive to early marriages, our study framework is factually opposed to it; which, in our opinion, justifies this discrepancy with the findings of these authors

On the other hand, late entry into childbearing is a constant in Europe, explaining both the large gap observed with Daoudi and the lack of renewal of the Western population.

4.1.2. Socio-Professional Level

The data relating to the declaration is sometimes subject to doubt because it is a source of potential bias during their exploitation and analysis. The majority of head of households had a secondary level of education, in agreement with the results of Mafina *et al.* in Brazzaville [18].

The underemployment which characterizes our states and the discriminatory difficulties in hiring women often explain the majority reported character of housewives in a good number of African series including our findings: 21.9% as opposed to 8.6% by Kehinde *et al.* in Nigeria [19] this difference is explained by the lack of relevance and rigor of the questioning of this variable; because very often the respondents only take employment as an employee even though they carry out an income-generating activity.

The notion of customary and free union in the face of the law also generates analysis biases. If in our context the notion of free or customary union is quite distinct from legitimate union in the Western sense, this is not often the case in other African contexts and as a result, any comparative analysis will therefore be biased.

In our series, 62.6% of those giving birth were single compared to 37.0% of married women, in contrast to other African studies reporting a high rate of legitimately married women. This is the case of Mafina *et al.* in 2002 in Brazzaville: 60% of married women gave birth Yisak *et al.* in Adwa in Ethiopia reported 90.6% [17] [18].

4.2. Obstetrical and Clinical Profile of Term Delivery

Obstetric Profile

1) Parity

The average parity was 2.2 ± 2.1 ; this average is lower than that reported by Ndiaye *et al.* in Senegal which was 3 ± 1 [14]. In agreement with Djadou *et al.* in Togo [15] which reported more than 30% of first-time mothers out of a population of 1006 births, first-time mothers were the majority in our series with 43.9%.

2) Obstetric history

Like other African series, we report a predominance of spontaneous miscarriages in the study of the obstetric history of our respondents (38.3%) while more than 80% began their prenatal follow-up before the 14th week of amenorrhea. This finding being declarative, we did not have any factual documentation relating to it. However, Camara *et al.* also reported a high history of miscarriages (15.0%) in its control population of full-term deliveries [20], as did Kabore *et al.* (16.5% abortions) [21].

In the African context, the inter-birth interval is often linked to a certain number of variables including the weight of traditions, the level of education and the financial autonomy of the pregnant woman.

In our study, its average was 27.7 ± 23.7 months and a high proportion (60% of full-term deliveries) had an inter-birth space greater than 24 months. The difference from Yisak *et al.* in northern Ethiopia which reports 82.5% of women having an inter-birth space of less than or equal to 24 months [17] reflects here the weight of traditions and the low schooling as well as the low completeness of family planning services in his series.

3) Prenatal follow-up

Failure to complete prenatal visits has often been reported by numerous African series as a source of maternal-fetal morbidity.

Following Dugas *et al.* in sub-Saharan Africa, depending on the African country, 15% to 25% of women begin their prenatal consultations in the first trimester [11].

In our series, 85.9% of full-term births began their visits before 14 weeks, which could, in our opinion, justify the high rate of women having made 4 or more prenatal visits.

This value was higher than the 58.8% reported by the Cameroon demographic and health survey in 2018 [2] which is a set of data integrating all strata, both urban and rural.

Positive serological results in pregnancy in our study were dominated by HIV serology (4.9%). These figures are lower than the 10% of WHO health statistics in Cameroon concerning HIV serology in pregnancy [2]. This decrease seems to correlate with the multiple strategies including Test and Treat implemented in the fight against AIDS in Africa and particularly in Cameroon.

In our series, pathologies during pregnancy were dominated by malaria with 27.4% of cases, in agreement with the findings of Mafina *et al.* in Congo [18]

where cases of malaria were also in the majority. This seems to us to be correlated with the high percentage (40.2%) of pregnant women receiving less than three doses of anti-malaria prophylaxis during pregnancy in our sample.

Contrary to the data from the demographic and health survey 53.2% [2], 11.4% of the births in our series had anemia during pregnancy.

This difference could be explained by the fact that the survey referenced here is globalizing and inclusive whereas our study took place in an urban environment and only concerned full-term pregnant women.

4.3. Clinical Profile

4.3.1. Anthropometric Characteristics of Full-Term Deliveries

Average height, average weight gain and BMI reflect the genetic potential and specific eating habits of each population.

It is therefore the differences found in our series (161.6 ± 5.0 centimeters; 8.4 ± 5.3 kilograms; 31.3 kilogram/square meter) with regard to the work of other authors, both African and Westerners Melina *et al.* in 2011 who found an average height of 166 ± 6.0 cm, an average weight gain of 16.6 ± 2.7 kilograms in Africa, Morocco Barkat *et al.* reported an average height of 158 ± 0.6 cm, Djadou in Togo found an average height of 160 ± 6 cm and an average BMI of 23.3 kg/square meter, in Senegal the average BMI at delivery at term was 25 ± 4 kilogram/square meter [13] [15] [22].

4.3.2. Clinical Characteristics

In the city of Douala, the medical histories of full-term births were dominated by HIV infection. According to the epidemiological survey among pregnant women in the ten regions of Cameroon in 2015, the highest prevalence of HIV by region was recorded in the Center, South-West and the Littoral. In the Littoral region, the prevalence was higher in urban areas with 10.6% which could justify the results of our analysis [23].

5. Conclusion

The profile of childbirth in urban Cameroon does not seem potentially dystocic compared to that of the same regional and racial area.

Contribution of Authors

Essome: coordinated the study and wrote the manuscript. Edjoa: collected the data. Tocki: provided the English translation and formatting of the manuscript. Nana, Ndolo, Ofakem, Bilkissou, Ngaha, Mounchikpou, Ngono, Boten, Mangala, Ngalame, Tchounzou; Ekono read and corrected the manuscript. Mve and Foumane supervised the study and corrected the manuscript. All authors read and validated the final manuscript

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Conflicts of Interest

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

References

- [1] WHO (2023) Trends-in-Maternal-Mortality-2000-2020.
- [2] République du Cameroun (2018) EDSC-V, Cameroun. *Présence Africaine*, **42**, 96.
- [3] Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A.B., Daniels, J., *et al.* (2014) Global Causes of Maternal Death: A WHO Systematic Analysis. *The Lancet Global Health*, **2**, e323-e333. <https://pubmed.ncbi.nlm.nih.gov/25103301/>
- [4] Petersen, E.E., Davis, N.L., Goodman, D., Cox, S., Mayes, N., Johnston, E., *et al.* (2019) Vital Signs: Pregnancy-Related Deaths, United States, 2011-2015, and Strategies for Prevention, 13 States, 2013-2017. *Morbidity and Mortality Weekly Reports*, **68**, 2013-2017. <https://doi.org/10.15585/mmwr.mm6818e1>
- [5] Hazemba, A. and Siziya, S. (2009) Choice of Place for Childbirth: Prevalence and Correlates of Utilization of Health Facilities in Chongwe District, Zambia. *Medical Journal of Zambia*, **35**, 53-57. <https://doi.org/10.4314/mjz.v35i2.46513>
- [6] Lwelamira, J. and Safari, J. (2012) Choice of Place for Childbirth: Prevalence and Determinants of Health Facility Delivery among Women in Bahi District, Central Tanzania. *Asian Journal of Medical Sciences*, **4**, 105-112. <http://www.maxwellsci.com/print/ajms/v4-105-112.pdf>
- [7] Fomulu, J.N., Ngassa, P.N., Nong, T., Nana, P. and Nkwabong, E. (2009) Mortalité maternelle à la Maternité du Centre Hospitalier et Universitaire de Yaoundé, Cameroun: Étude rétrospective de 5 ans (2002 à 2006). *Health Sciences and Disease*, **10**, 1-6.
- [8] Belinga, E., Foumane, P., Dohbit, S.J., Um, E.M.N., Kiyeeck, D.K. and Mboudou, E.T. (2017) Prognosis of Referred Patients with an Obstetric Emergency at the Yaoundé Gynaecology, Obstetrics and Pediatrics Hospital. *The Pan African Medical Journal*, **28**, Article 301. <https://doi.org/10.11604/pamj.2017.28.301.10773>
- [9] Kouamé, G., Up, A., Universit, B., Cocody-Abidjan, B., Ludovic, E.K., Up, A., *et al.* (2018) Analyse systémique de la discontinuité du suivi prénatal en milieu urbain ivoirien. Editions Universitaires de la Cote d'Ivoire, 261-372.
- [10] Ministère de l'Economie, de la Planification et de l'Aménagement du Territoire, Ministère de la Santé Publique, Institut National des Statistiques du Cameroun (2012) Rapport Enquête Démographique et Sanitaire (EDS IV). Institut National de Statistique, Yaoundé, 6.
- [11] Dugas, M. (2011) Donner aux populations vulnérables de l'Afrique Subsaharienne un accès aux soins obstétricaux: stratégie avancée de consultations prénatales. *Médecine Tropicale*, **71**, 489-497.
- [12] Jin, C., Li, Y., Li, X., Liu, C., Wang, M., Cheng, Y., *et al.* (2019) Associations of Gestational Age and Birth Anthropometric Indicators with Brain White Matter Maturation in Full-Term Neonates. *Human Brain Mapping*, **40**, 3620-3630. <https://doi.org/10.1002/hbm.24620>
- [13] Barkat, A., Belghiti, H., Janah, K., Chaoui, A., Kharbach, A., Ouaaline, M., *et al.* (2007) Analyse de la composition corporelle de la femme enceinte Marocaine et

corrélations avec le poids des nouveau-nés. *Biomatec Echo*, **5**, 70-75.

- [14] Ndiaye, O., Sylla, A., Diouf, S., Guèye, M., Guèye, M., Guélaye, M., *et al.* (2004) Paramètres anthropométriques du nouveau-né à terme au Sénégal. Résultats préliminaires. *Archives de Pédiatrie*, **11**, 259-260.
<https://doi.org/10.1016/j.arcped.2003.12.013>
- [15] Djadou, K., Sadzo-Hetsu, K., Tatagan, K., Assimadzi, K., Sodzi, K. and Lapillonne, A. (2005) Paramètres anthropométriques, fréquence et facteurs de risque du retard de croissance intra-utérin chez le nouveau-né à terme dans la région du Nord-Togo. *Archives de Pédiatrie*, **12**, 1320-1326. <https://doi.org/10.1016/j.arcped.2005.03.051>
- [16] Daoudi, B. (2019) Impact des caractéristiques socio-économiques des femmes enceintes domiciliées à Marseille sur les poids de naissance à terme: Étude rétrospective d'après le premier certificat de santé, en 2017. Aix-Marseille Université, Marseille.
- [17] Yisak, G., Abera, H., Solomon, W. and Haftom, G. (2017) The Prevalence of LBW among Term Newborns in Adwa General Hospital; Northern Ethiopia. *Obstetrics and Gynecology International*, **2017**, Article ID: 2149156.
<https://doi.org/10.1155/2017/2149156>
- [18] Mafina-Mienandi, M.-C., Ganga-Zandzou, P.-S., Makoumbou, P., Malonga, H., Ekoundzola, J.-R. and Mayanda, H.-F. (2002) Travail Original Facteurs de risque de retard de croissance intra-utérin au Congo. *Journal of Obstetrics & Gynecology and Reproductive Biology*, **31**, 500-505.
- [19] Kehinde, A., Njokanma, O. and Olanrewaju, D. (2013) Parental Socioeconomic Status and Birth Weight Distribution of Nigerian Term Newborn Babies. *Nigerian Journal of Paediatrics*, **40**, 299-302.
- [20] Camara, B., Diack, B., Diouf, S., Signata-Sy, H., Sall, M., *et al.* (1996) Les faibles poids de naissance: Fréquence et facteurs de risque dans le district de Guediawaye (Banlieue de Dakar-Sénégal). *Medecine d'Afrique Noire*, **43**, 260-265.
- [21] Kabore, P., Donnen, P. and Dramaix-Wilmet, M. (2007) Facteurs de risque obstétricaux du petit poids de naissance à terme en milieu rural sahélien. *Santé Publique*, **6**, 489-497. <https://doi.org/10.3917/spub.076.0489>
- [22] Melina, S. (2011) Evaluation de l'information des femmes enceintes sur l'équilibre alimentaire et le gain pondéral. Université Paris Descartes, Paris.
- [23] Billong, S., Fokam, J., Billong, E., Nguéack-Tsague, G., Essi, M.J., Fodjo, R., *et al.* (2015) Distribution épidémiologique de l'infection à VIH chez les femmes enceintes dans les dix régions du Cameroun et implications stratégiques pour les programmes de prévention. *The Pan African Medical Journal*, **20**, Article 79.
<https://doi.org/10.11604/pamj.2015.20.79.4216>