Medical demography and access to prenatal care in the Foumbot agricultural production basin (West Cameroon)

Evaluate Medical demography and access to prenatal care in the Foumbot agricultural production basin (West Cameroon)

Abstract

Prenatal care is ……(background) dynamics of the medical population, the number and competence of doctors is one of the key factors in meeting patient demand for care.The aim of this research…….For a long time, public authorities paid little attention to demographic studies. Yet they are essential not only to identify and understand the many current difficulties, but also to anticipate the future development of the medical profession and assess the density of doctors needed to meet the population's needs. In western Cameroon, some 1,250 medical specialists are working in the field. In this region, with a population of 2.77 million in 2019, health centers offer comprehensive care to the population. Antenatal care for women prior to childbirth includes medical consultations and systematic examinations by a doctor, midwife or gynecologist, who checks the health of both mother and baby. As part of our work, we carried out a six-month study in the commune of Foumbot on the theme of "Medical demography and access to prenatal care". Foumbot is one of the predominantly rural and agricultural communes in the western region of Cameroon. We used a research methodology involving multidimensional analysis, drawing on data from field surveys of 140 randomly selected women in the villages of Baigom, Fosset, Foumbot 1, 2, 3, 4, 5, Maka, Momo and Njone. Data collected covered household structure, fertility and information on examinations carried out during prenatal consultations. These data were analyzed using descriptive statistical techniques. This enabled us to highlight the variation in quality of antenatal care according to context and type of health facility, as well as health service attendance over the last six months. Our results also show the links between demographics and access to prenatal care in reducing perinatal mortality. Only 70% of pregnant women made the minimum four visits required, 22% did not use antenatal care, while 8% had fewer than four visits.The maternal health situation has improved in the urban area of Foumbot, but in rural areas, recourse to traditional practitioners remains predominant (30%). The maternal mortality rate fell from 20 to 25 deaths per 100,000 live births between 2020 and 2023. Life expectancy at birth is 56 years, the infant mortality rate is 54‰ and the adult literacy rate is 63%. Perinatal health education has increased maternity and reduced deaths in our study area. However, health infrastructures (hospitals, dispensaries, doctors' surgeries, dental surgeries, pharmacies) and the number of doctors remain insufficient for a growing population, which is increasing by around 3% a year. In addition, a large number of doctors are concentrated in urban centers, leaving many gaps in healthcare in rural areas.

Key words: Medical demography, Foumbot, Medial infrastructure, Prenatal care.

Introduction

In medical demography, with the characteristics of medical and para-medical professions, to modulate the flow of trainees (doctors, nurses, midwives), practice authorizations (pharmacies, laboratories), etc.: age, gender, mode of practice, etc. age, gender, mode of practice, etc. age, gender, type of practice, etc. age, gender, type of practice. Access to healthcare is a person's ability to obtain appropriate healthcare (Ridde, 2012).

Cameroon faces medical constraints on access to prenatal care (Meva'a Abomo, 2017; Tankam, 2014). Thus, in the agricultural production basin of Foumbot (West Cameroon) as elsewhere, prenatal care is an investment in human capital and part of national development policy (Fall, 2017; Kouokam Magne, E., 2012). However, women regularly encounter serious health problems during pregnancy, either for themselves or for their child. While the maternal health situation has improved slightly in urban areas, recourse to traditional methods remains predominant in rural areas. Systematic prenatal care includes medical consultations and systematic examinations (Tourneux, H., 2007). The doctor checks that the pregnant woman and child are in good health (Prual, A., 2020 ; Ridde, V., 2012).

In Foumbot, our study area, which is a major agricultural production basin with a population of 76,486 and a population density of 7,412 / km² according to the 3rd RGPH 2005 (of which 50,350 in Foumbot Ville and 26,136 in rural areas), access to modern health services remains difficult. Medical staffing levels are low in both rural and urban areas, due to a variety of political, economic, social and cultural factors. It is essential to highlight these factors in order to better target investment in healthcare infrastructure, which remains underdeveloped in relation to demand.

According to data from the latest population census carried out in Cameroon, only 60% of pregnant women have completed the minimum four prenatal visits required throughout the country (INS, 2018). In contrast, 14% did not use antenatal care at all and 26% had fewer than the minimum four visits. The overall objective of our study, entitled “Medical demography and access to prenatal care in the Foumbot agricultural production basin”, is to analyze the determinants of prenatal care use in this commune. We also analyzed the technical facilities and administrative services, according to specialties such as gynecology, general medicine, radiology, surgery, pneumology, cardiology, and odontology and so on. What are the main

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We examined how economic factors also influence the choice of healthcare professionals and restrict the total number of antenatal visits below the recommended eight. More specifically, the study aimed to estimate the demand for antenatal care addressed to different health practitioners and to identify the variables that influence the use of their services. To do this, we used several data sources and field surveys.

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Research methodology

The aim of this research was to analyze health needs, and thus to quantify and qualify the need for maternal health services in the commune of Foumbot. By identifying gaps in the supply of medical services. In addition, this study examined medical demographics, analyzing the distribution and availability of health professionals in the area This work also looks at aspects such as the number of health professionals per inhabitant, the geographical distribution of health services, socio-economic or cultural barriers to accessing prenatal care, the impact of these factors on maternal and child health, and developing more effective health policies.

Data were collected from 140 women randomly selected in the villages of Baigom, Fosset, Foumbot 1, 2, 3, 4, 5, Maka, Momo and Njone, and in health centers drawn by strata from the human health services. The health centers perform urine tests from the date on which menstruation is absent; the early detection urine test is performed up to 6 days before the date on which the woman should have her menstrual period, by the nursing staff. In the selected towns, we collected all indicators relating to distance, availability and cost of care. We also recorded the spatial logics of recourse: why don't patients always go to the nearest place of care? And we also recorded the perceived obstacles and declared causes of renunciation: waiting times more than distance for the patient from the population of each stratum in the study area (table 1).

Collected data were entered and analyzed in Excel. The Chi-square test was used for percentage comparisons, and a non-parametric median comparison test for quantitative variables. Data were weighted according to the probability of inclusion in the study for each individual. Analyses were performed using Stata 13.1 software (Stata Corporation, College Station).

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Table 1: Distribution of women of childbearing age in the villages studied (15-49 years)

Municipality	Village	Effectifs (15-49 years)	%
	Baigom 1	2 129	7
	Baigom 2	1 163	4
	Fosset	6 269	19
	Foumbot 1	5 557	17
	Foumbot 2	3 320	10
Foumbot	**Foumbot 3**	3 751	12
	Foumbot 4	4 296	13
	Foumbot 5	2 967	9
	Maka 2	1 955	6
	Momo	658	2
	Njone	250	1
	Total	**32 315**	100

Source: field survey, 2024

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Results and discussion

In western Cameroon, the population is also very young (40% under 15), with high fertility (4.6 children per woman on average) and high mortality (life expectancy at birth 54 years). In this part of the country, some 1,250 specialist doctors work in the field. With a population of 2.77 million in 2019, the region's health centers offer comprehensive care to the population.

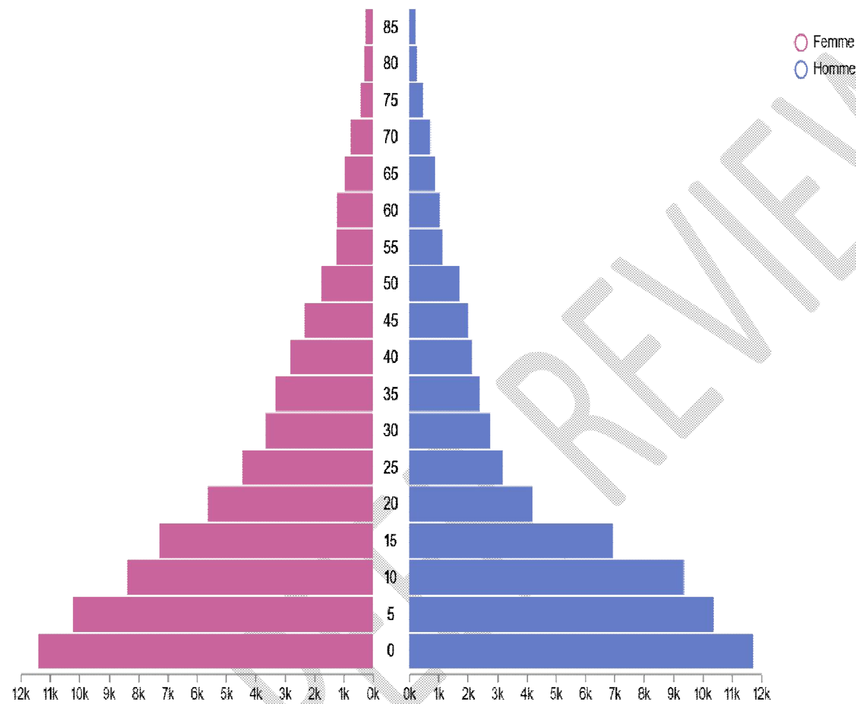

Figure1:Demographic tree of the population of Foumbot-West, Cameroon

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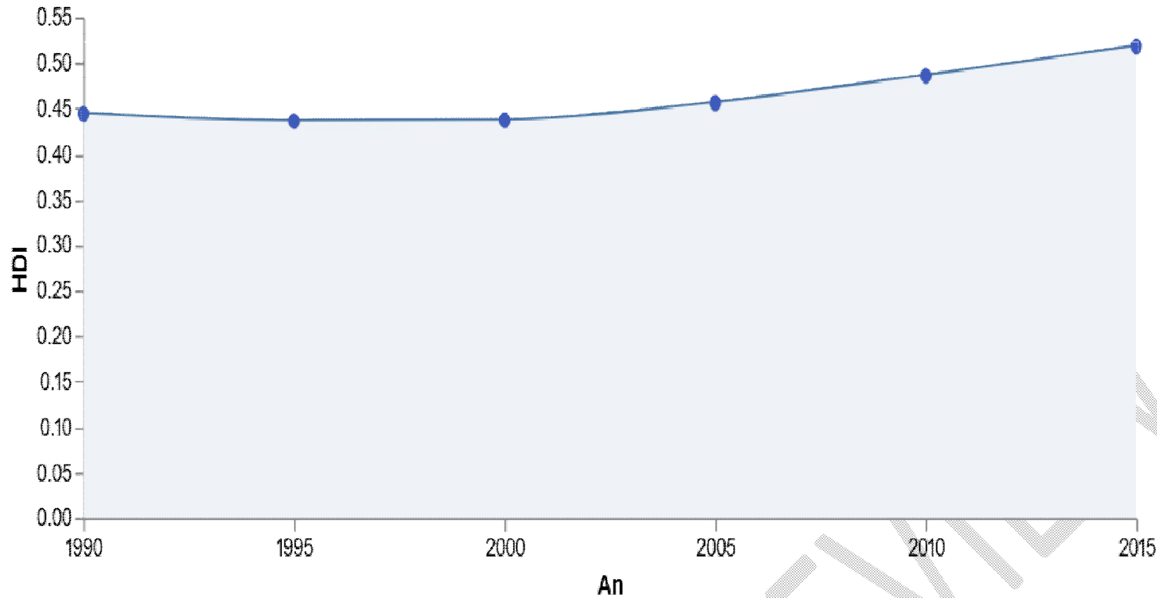

Sources: Kummu, M., Taka, M. & Guillaume, J. Global gridded datasets for Gross Domestic Product and Human Development Index from 1990 to 2015. Sci Data 5, 180004 (2018) doi:10.1038/sdata.2018.4

Figure 2: The Human Development Index (HDI)

For Cameroon as a whole, the HDI value for 2019 is 0.563, placing the country in the "average human development" category and 153rd out of 189 countries and territories. The population of Foumbot (figure 1and 2), is also still living in poverty, although agriculture plays a socio-economic role.

1. Fertility rate of study population

The age-specific fertility rate is derived. We calculated it by dividing the number of births during the reference period among women of a given age at the time of birth by the number of women of the same age during the same period in our study area.

For all women, the average number of children rises from 0.2 at 15-19, to 6.7 at 20-24, and reaches 12 at 45-49, at the end of their fertile life. Table 1 shows that the Fosset health area leads the way, with 19% of women of childbearing age living in peri-urban areas. It is followed by Foumbot 1 with 17%, and in third place we have Foumbot 4 with 13%, both of which are largely located in urban areas. These health areas contain both private and public health services. Two chi-square tests enabled us to check whether the frequencies observed in one or more categories correspond to the expected frequencies. In the most remote areas, many health centers

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struggle to maintain medical staff and obtain supplies. These health centers, sometimes without accommodation, regularly provide primary care and, where appropriate, secondary care, and combine preventive, diagnostic and curative activities, sometimes in the patient's own home. 15% were recorded during the course of our study.

2. Medical infrastructure in the commune of Foumbot

In the West Cameroon region as a whole, there are 20 health districts, divided into 220 health areas; there are 854 health facilities, 425 of them public and 429 private. There are 02 referral hospitals, 10 district hospitals, 34 CMAs and 359 CSIs (MINSANTE 2023). The maternal mortality rate in this region is 469 maternal deaths per 100,000 live births, among women who gave birth in the five years preceding the 2018 survey, we record that 87% received prenatal care for their last birth by a trained provider. Around 65% of these women made at least four antenatal visits, and 41% started their visits in the first trimester of pregnancy. 71% of the most recent births received protection against neonatal tetanus. However, these figures show that the issue of prenatal care remains problematic for certain populations in this region. Such is the case for certain localities in the Foumbot district. The Foumbot public sub-sector is struggling to serve the population. The following table shows these integrated health center (IHC) structures.

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Table 2: Public health facilities

Health area	Health training	Category	Distribution
Baigom 1	CSI Baigom Kwen	CSI	Rural
Foumbot 1	Hôpital de Foumbot	HD	Urban
Foumbot 3	CSI Nkoundoumbain	CSI	Urban
Foumbot 4	CSI Mbantou	CSI	Urban
Foumbot 5	CSI Mbamjou-Kounoure	CSI	Rural
Maka 2	CSI MAKA II	CSI	Rural
	CSI Pont	CSI	Rural

Source: field survey, 2024

As for the public sub-sector in our study area, we have a district hospital in Foumbot 1, in the town center(table 2). Then there are 6 integrated health centers, of which Maka 2 holds the record with 2.

3. Private health facilities

The private sub-sector includes 3 non-profit health facilities: 1 CMA de l'ECC de Baigom, 1 Centre Medio privé notably the Centre médico-sanitaire notre dame de l'Espérance located in the Foumbot 3 health area. We also have 3 CSPs (Protestant health centers), including CSP LA Reference, CSP ALDINE and CSP MARATHANA. We also have 1 CSC (Catholic health center), CS Catholique Jeanne Mance. To these non-profit centers, we add the NGO HEALTH HOPE GIVER. In addition, non-profit health structures such as 2 CM (cabinet médicalisé) like CM la Grace and CM de Al Nourr in Foumbot 1 and 4 respectively. Added to these results are 14 CS (health centers), including CS Sosahedu, CS Ste Dorothée, CS LA MODESTIE, CS le Bon Samaritain, CS la Miséricorde, CS Bon Secours, CS Patience, CS Souvenir, CS Ad-Lucem, CS EL “SHADAI” Kounoure, CS la Clémence, CS St Blaise and CS la Paix, and finally Clinique Fondation Nfiya Madeleine. There are 22 training centers in all. So the private sub-sector contributes far more to the healthcare offer than the public sector.

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4. Technical facilities in the commune of Foumbot

The technical platform covers all the medical facilities, equipment and devices used in the diagnosis and treatment of patients registered in our study area. We have medical analysis laboratories, medical imaging equipment, operating theatres... These facilities are often grouped together in the same area. Mothers-to-be give birth in the maternity unit of their choice in the Salle Nature, accompanied by their midwife or a doctor who has an agreement with the maternity unit to assist in the delivery of their patients. The integrated health centers in Foumbot have H-shaped buildings, with an office for the center manager, a reception area, a pharmacy, a meeting room and a vaccination room. There is also a staff toilet, a store, a workroom and a maternity ward. It can be seen that equipment accounts for 25% of the neonatology medical technical platform, while infrastructure accounts for 40%. Human resources, on the other hand, account for 35%. The level of maintenance skills among users is very low, at 10%. Heavy equipment accounts for 30% of the most frequent breakdowns.

Foumbot hospital leads the way with 72 beds, followed by Baigom CMA with 40 beds, and Koundoumbain, Kounoure, Matam, Mbantou and Maka 2 CSIs with 15, 11 and 10 beds respectively. The information and communication technologies used to operate these facilities are virtually unknown.

5. Prenatal consultation services in the commune of Foumbot

Pregnancy, childbirth and postpartum monitoring services offer proven techniques and specific guidelines for each level in the study area. These services vary according to the period: during pregnancy, labor, and delivery and postpartum. Prenatal consultations regularly emphasize quality of care from the very beginning of pregnancy. Whatever the usual risk factors, every woman receives appropriate medical follow-up. These consultations are led by qualified staff to detect medical problems early, prevent complications such as miscarriage and premature birth, and prepare expectant mothers for childbirth by ensuring the necessary equipment. In the event of complications, consultations provide for a transition to a safe hospital birth. This comprehensive approach to prenatal care actively addresses maternal health needs, supported by a socio-political environment conducive to improving health outcomes for mothers and their babies.

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Only 70% of pregnant women have made the minimum four visits required, 22% have not had prenatal care, while 8% have had fewer than four visits. We note that pregnant women are increasingly visiting health facilities. This result is confirmed by the work of Meva'a Abomo, 2017 and Tankam, 2014.

6. Risks and care related to complications among women surveyed

The risk of complications during pregnancy and/or childbirth is around 5% in the villages studied, particularly in the presence of certain pathologies or a history of at least seven medical consultations (with a gynecologist, anesthetist, midwife or general practitioner). The results show 60% individual and 40% couple interviews during the 1st trimester of pregnancy in the study area. These pregnant women benefit from medical follow-up at 80% (at basic rates) of the total medical costs borne by the patient. Compulsory biological examinations are covered at 100% by the pregnant woman. Physical examinations: weight measurement, blood pressure, urine dipstick, obstetrical examination, etc. Ultrasound (20 weeks), prevention of mother-to-child transmission of HIV (screening, ART for the mother, psychological support), intermittent preventive treatment for malaria, STI screening, syphilis screening are paid for by pregnant women.

7. Medication use among the survey population

70% of these women take their medication as prescribed during pregnancy, but 30% self-medicate with herbal remedies.Folic acid (Vitamin B9) is frequently prescribed, as a continuation of the first two to three months of pregnancy. Over-the-counter medications that the patient is accustomed to buying are also taken into account. Iron may be used occasionally during the first five months of pregnancy (24 weeks).

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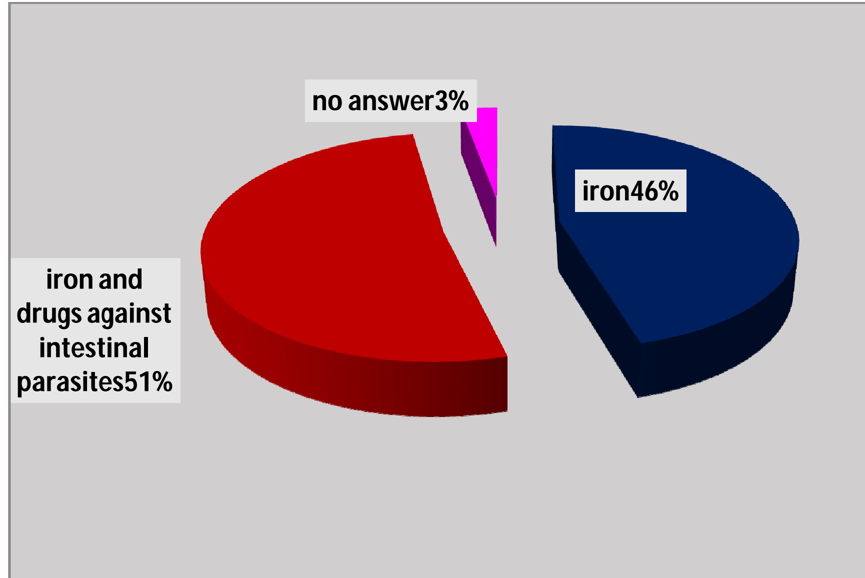

Source: 2024 field survey

Figure 3: Medications taken by pregnant women

The results in the figure show that almost 46% of women who had given live birth in the years preceding our survey had taken iron in tablet or syrup form during their most recent pregnancy(figure 3),. Taking medication against intestinal parasites is less widespread. A significant proportion of women took both, accounting for 51% of those surveyed. The proportion of women who took iron during pregnancy increased with their level of education, ranging from 7.14% among women with no education to 38.6% among those with at least primary education, in terms of taking iron only. On the other hand, the combined use of iron and medication against intestinal parasites is more widespread. This proportion ranges from 9.3% among uneducated women to 22.9% among women with secondary education, and 19.3% among women with primary education.

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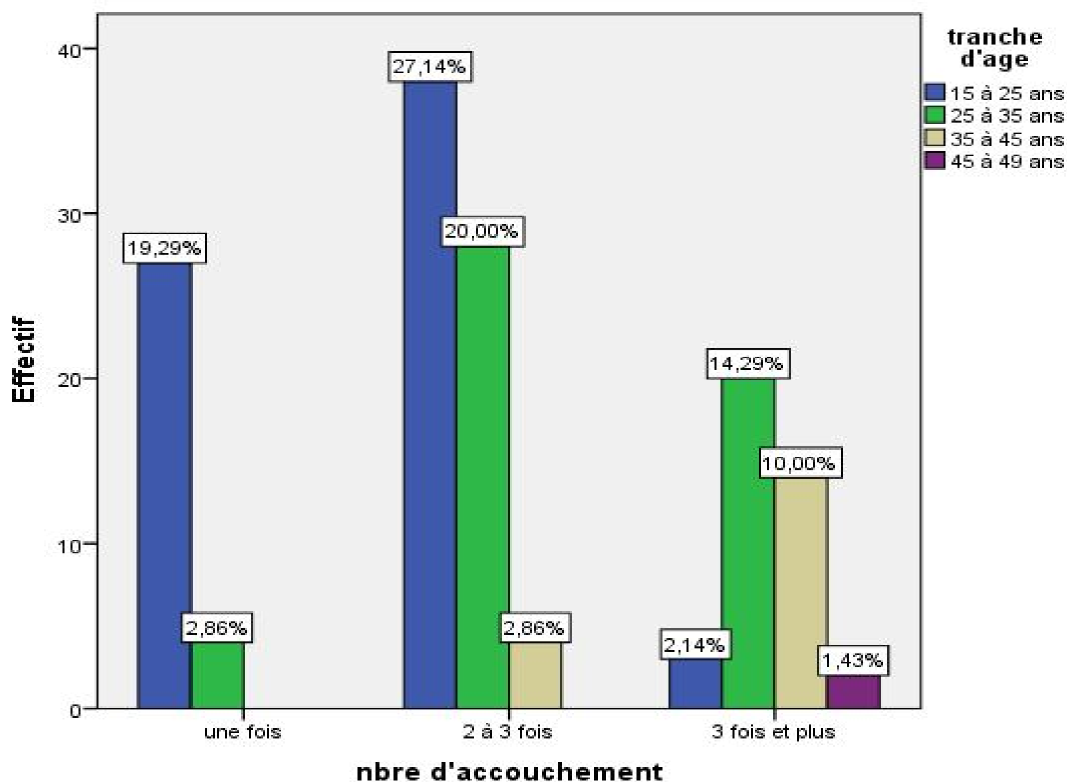
8. Number of births per year in Foumbot

The birth rate is the ratio of the number of live births in a given year to the total population of that year. The number of births is the number of live births observed and recorded in the various Foumbot health facilities, as shown in the figure.



Source: field survey, 2024

Figure 4: Number of deliveries per household

From this graph, it can be seen that 50% of women had to go to the maternity hospital 2 to 3 times. 27.9% had given birth more than three times. 22.1% were first-time mothers(figure 4). Live births recorded in the various health services in the health areas of the Foumbot commune (Baigom, Foumbot 1, 2, 3 and 4; Foussan; Maka; Momo). Over the years, the number of births reported has changed. From 2859 newborns in 2018 to 3616 births in 2023, passing through 2896 and 3538 live births in 2020 and 2022. These birth figures justify the high fertility of women and the predominantly young local population.

9. Women's recurring illnesses

Foumbot is making efforts to improve its physical environment. However, some people still behave badly when it comes to hygiene and environmental sanitation, particularly when it comes to dumping plastic bags, bottles and household waste in the countryside. This encourages the spread of mosquitoes and the proliferation of diseases such as malaria and water-borne diseases. Recurrent illnesses among pregnant women.

Table 3: Recurrent illnesses among women surveyed

Disease	numbers	Percentage%
Malaria	85	60,7
Typhoid	17	12,1
Anemia	16	11,4
malaria and anemia	6	4,3
typhoid and anemia	2	1,4
no response	14	10

Source: field survey, 2024

According to this table, 61% of women who responded to the survey frequently suffer from malaria during pregnancy. This percentage is followed by typhoid (12%) and anemia (11%). 4% said they frequently observed both malaria and anemia during pregnancy. 1.4% suffered from typhoid combined with anemia. The high rate of malaria justifies the fact that women do not take the trouble to sleep under a mosquito net, and to ensure a healthy environment. The 12% typhoid rate shows that pregnant women do not have access to potable water sources that are not harmful to their health (Baigom, Foumbot 1, 2, 3 and 4; Foussan; Maka; Momo). The maternal health situation has improved in urban areas of Foumbot; in rural areas, however, recourse to traditional practitioners predominates at 30% (table 3).

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Table 4: Other pathologies recorded during pregnancy

Illness during pregnancy in Foumbot	%
Hypertension or pre-eclampsia	20
Gestational diabetes	15
Threat of premature delivery	35
Intrauterine growth retardation	30

Source: field survey, 2024

Bleeding and pain are more frequent in the 1st trimester. Some normally progressive pregnancies are accompanied by abdominal or pelvic pain, usually of moderate intensity. Fever and vomiting are also recorded. We have recorded 35% threat of premature delivery and 15% of gestational diabetes due to poor nutrition of the pregnant woman(table 4). For gestational diabetes, we recommend citrus fruits: mandarins, grapefruit, oranges, vegetables and leafy greens, various varieties of lettuce, carrots and whole grains: brown rice, rolled oats, whole-wheat pasta, etc.

10. Traditional medicine

Traditional medicine, particularly the use of medicinal plants, is well established in Cameroon. Long sidelined, this medicine is increasingly recognized and integrated into the healthcare system. The country benefits from a rich heritage of medicinal plants, thanks to its diverse climate and the abundant variety of plants available, which are widely exploited by traditional practitioners. These practitioners use plants in their raw or processed form. However, this heritage has not yet been thoroughly researched to assess appropriate dosages and safety for large-scale development and integration into modern medicines.

11. Maternal mortality rates in the study area

In our study area, infectious diseases such as pneumonia, diarrhea and malaria, as well as premature births, birth asphyxia, trauma and congenital anomalies remain the main causes of death in children under 5. The recorded maternal mortality rate rose from 20 to 25 deaths per 100,000 live births between 2020 and 2023. Life expectancy at birth is 56 years; the infant mortality rate is 54‰, and the adult literacy rate is 63%.

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12. Access to healthcare in the study area

Overall, access to healthcare is satisfactory, with only 40% of the population surveyed having access to local care in less than thirty minutes. Similarly, most specialist doctors, midwives and the most common medical equipment are accessible by road in more than 30 minutes on average, and financial means are essential.Analyses carried out over the last few years on the cost of hospitalization show that a day's hospitalization costs an average of 3,500 CFA francs in a government department, compared with 5,000 CFA francs in a private department. Consultation fees are around 1200 Fcfa.

Conclusion

Free health care does not exist throughout the country. Patients choose their doctor and pay directly for the care they receive. But these costs are not reimbursed, as there is no health insurance system, with the exception of certain private companies that cover their employees' medical expenses.

Proximity to a health center does not necessarily guarantee accessibility, as other factors, notably economic and social, play a crucial role. Indeed, according to the current definition, “physical accessibility refers to the ability to travel between patients' places of residence and points of service delivery. It takes into account both patient mobility and available transportation resources, including travel time, distance and costs”. Interviews with healthcare providers highlighted the existence of social measures to help disadvantaged populations gain access to care. This facilitated access results from a context of solidarity, mobilizing various urban players in the healthcare sector, all committed to reducing inequalities in access to care. The main difficulties associated with pregnancy care are the high cost of services, family reluctance, the low number of female gynaecologists and inadequate information.

Recommendation……….

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