Evaluation of Self-Medication and its Correlates Among Parturients in Prenatal Consultations at the Amissa Bongo University Hospital Center in Franceville, Southeast Gabon

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Abstract:

➢ *Background*
Self-medication during pregnancy is a widespread public health concern in sub-Saharan Africa, posing significant risks to maternal and fetal health. In Gabon, limited access to healthcare and reliance on traditional remedies may exacerbate this practice, yet data on its prevalence and determinants remain scarce, particularly in southeastern regions.

➢ *Methods*
We conducted a cross-sectional study among 396 pregnant women attending prenatal consultations at the Amissa Bongo University Hospital Center (CHUAB) in Franceville, Gabon, between January and December 2023. Data were collected through face-to-face interviews and medical records using a standardized questionnaire. Self-medication was defined as the use of any medication without a physician's prescription. Univariate and multivariate logistic regression analyses were performed to identify sociodemographic, clinical, and behavioral correlates of self-medication.

➢ *Results*
The overall prevalence of self-medication was 65.4% (95% CI: 60.0–70.0). In multivariate analysis, age was the strongest independent predictor: compared to women aged 25–30 years, those aged 18–24 (aOR = 5.74; p = 0.012), 31–35 (aOR = 12.24; p = 0.001), and ≥36 years (aOR = 4.98; p = 0.027) had significantly higher odds of self-medication. Conversely, HIV-positive women were markedly less likely to self-medicate (aOR = 0.008; p < 0.001). Although not statistically significant in the adjusted model, rural residence, low educational level, and use of medicinal plants were strongly associated with self-medication in univariate analysis.

➤ *Conclusion*

Self-medication is highly prevalent among pregnant women in Franceville, driven primarily by age-related factors and modulated by access to structured care, as evidenced by the protective effect of HIV status. These findings underscore the need for targeted health education during prenatal visits, integration of traditional medicine discussions into maternal counseling, and improved access to quality antenatal care, especially for adolescents and older pregnant women in underserved areas.

I. INTRODUCTION

Maternal and perinatal health is a fundamental pillar of overall health development, recognized as a priority by the Sustainable Development Goals (SDGs), particularly Goal 3, which aims to reduce maternal mortality and improve newborn health [1]. During pregnancy, the well-being of the mother directly influences that of the unborn child, making rigorous and appropriate medical follow-up essential. However, in many regions, particularly in sub-Saharan Africa, inequalities in access to healthcare force some pregnant women to resort to unsupervised practices, such as self-medication [2]. Self-medication, defined as the use of medications or products without formal medical prescription, is a widespread practice in several developing countries. It may be motivated by factors such as poverty, distance from health centers, or a lack of awareness of the associated risks [3]. Among pregnant women, this practice exposes them to increased health risks for both the mother and the fetus, including complications such as miscarriages, congenital malformations, or undesirable drug interactions [4]. In Gabon, although the healthcare system is continuously improving, challenges persist, particularly in rural and semi-urban areas like Franceville, where health infrastructure may be limited [5]. A recent study conducted in the region revealed that nearly 45% of pregnant women reported resorting to self-medication during their pregnancy, often due to insufficient access to prenatal consultations or excessive trust in traditional remedies [6]. These behaviors raise major concerns regarding their impact on maternal and child health [7]. In light of these realities, it is crucial to evaluate the correlates of self-medication among parturients to better understand the determinants of this phenomenon and propose appropriate interventions This study is part of this effort, focusing on the city of Franceville, a key demographic and economic center in southeastern Gabon, to assess the prevalence and correlates of self-medication among parturients in prenatal consultations at the Amissa Bongo University Hospital Center (CHUAB).

II. MATERIALS AND METHODS

A. Context

The study took place at the Amissa Bongo University Hospital Center (CHUAB) in Franceville, southeastern Gabon, which is a key medical facility for prenatal care in the region.

B. Overview of CHUAB

The Amissa Bongo University Hospital Center (CHUAB) is a key medical facility in Franceville, southeastern Gabon, providing essential care to local populations and surrounding rural areas. It specializes in gynecology-obstetrics, pediatrics, and prenatal care, serving both urban residents and nearby villages with limited healthcare access. CHUAB's objectives include delivering quality medical care, enhancing maternal and child health, training healthcare professionals, and conducting clinical research on diseases like malaria and sexually transmitted infections. The center is equipped with prenatal consultation services, a medical laboratory, a maternity unit, and an integrated pharmacy, though it occasionally faces medication stock shortages. Current challenges include difficult access for rural populations, a lack of awareness about the importance of prenatal visits, and medication shortages that affect treatment continuity.

C. Study Population and Period

The target population included all parturients attending prenatal consultations between January and December 2023. These women were selected regardless of their age, marital status, or medical history, provided they met the inclusion criteria.

➤ *Selection Criteria*

- *Inclusion Criteria*

Only pregnant women followed at CHUAB who had signed an informed consent form and had complete data on sociodemographic and clinical characteristics were included in this study.

- *Exclusion Criteria*

Women lacking sufficient data for analysis, those who refused to participate in the study, or those without informed consent were excluded. Additionally, women with medically unconfirmed pregnancies were also excluded from the study.

D. Sample Size

The sample size was calculated using the following formula for a cross-sectional study:

$$N = [Z^2 \cdot P \cdot (1-P)] / d^2$$

Where: N is the required sample size, Z=1.96 (critical value for a 95% confidence level), P=0.30 (estimated prevalence of self-medication among pregnant women in sub-Saharan Africa [8], d=0.05 (acceptable margin of error).

Calculation: n= $(0.05)^2$ x $(1.96)^2 \cdot 0.30$ x $(1-0.30)$ =323

To compensate for missing data or refusals to participate, the final sample size was increased by 10%, resulting in a total of **396** participants.

E. Data Collection

Data were collected from two main sources: face-to-face interviews (duration: 15-20 minutes) and immediate data entry on an electronic tablet (REDCap software) during their prenatal consultations, as well as from medical records.

➤ *Studied Variables*

The study examined various factors, including sociodemographic characteristics (age, education level, marital status, and residence), and behavioral characteristics (medical history, number of previous pregnancies, HIV status, Herbal medecine consumption, and frequency of prenal visits).

➤ *Data Collection Tools*

A standardized structured questionnaire was utilized to gather sociodemographic, and behavioral information, while clinical data, including gestational age and medical history, were extracted from patients' medical records with their consent.

F. Operational Definition of Self-Medication

In the context of this study, self-medication was defined as the use of medications without a prescription or medical supervision, whether for current symptoms or as a preventive measure [9].

G. Data Treatment and Statistical Analysis

The collected data were entered into a Microsoft Excel 2016 spreadsheet, cleaned, and secured before being analyzed using R software version 3.6.1. Descriptive statistical analyses were conducted to calculate means and standard deviations for continuous data, as well as frequencies and percentages. Fisher's exact test was used to compare sociodemographic characteristics between groups that practiced and did not practice self-medication. Multiple logistic regression identified independent factors associated with self-medication, with results considered significant at a p-value of 0.05 or less within a 95% confidence interval.

H. Ethical Considerations

Ethical approval was granted by the Research Ethics Committee of the University of Science and Technology of Masuku (Ref: 143/2024/CER-USTM). All participants provided written informed consent prior to enrollment after being informed about the study's procedures and objectives, as well as their right to withdraw at any time. Data confidentiality was strictly upheld in accordance with medical ethics principles.

III. RESULTS

➤ *Overall Prevalence of Self-Medication Among Study Participants*

A total of 396 pregnant women, with a mean age of 31.09 ± 6.45 years, attending prenatal consultations were enrolled in this study. With a 100% response rate, the overall prevalence of self-medication was found to be 65.40% (95% CI: [0.60–0.70]).

➤ *Correlations Between Self-Medication Practices and Sociodemographic Variables of Study Participants (N=396)*

In this study, the lowest prevalence of self-medication was observed among women aged 18–24 years (50%), who were significantly less likely to self-medicate compared to the reference group (25–30 years), with an odds ratio (OR) of 0.47 (p = 0.008). In contrast, women aged 31 and older reported higher rates of self-medication (71–75%), although these differences did not reach statistical significance. Marital status also played a notable role as unmarried women were 1.65 times more likely to engage in self-medication than married women, and this risk rose sharply by more than fourfold among divorced or widowed women (p < 0.001). Additionally, lower educational attainment (no formal education or only primary schooling) was strongly linked to self-medication, with a prevalence of 76.9% and nearly triple the odds (OR = 2.85; p < 0.001) compared to women with secondary education. In contrast, women with higher education showed no statistically significant difference in self-medication behavior. Finally, living in a rural area was associated with a substantially higher prevalence of self-medication (72.0% vs. 57.1% in urban areas), corresponding to an 82% increased odds (OR = 1.82; p = 0.003) (Table 1).

Table 1: Cross-Tabulation of the Overall Prevalence of Self-Medication Based on the Sociodemographic Characteristics of Pregnant Women in the Study (n=396).

Sociodemographic Characteristics	Total Number of Pregnant Women in the Study N (%)	Prevalence of Self-Medication		Bivariate Analysais	
		Yes N (%)	No N (%)	Crude OR Brut 95% IC	p-value
Age groups (in years)					
18 - 24	60 (15.15)	30 (50)	30 (50)	0.47 [0.6 – 0.85]	**0.008***
25 - 30	93 (23.9)	44 (47.31)	49 (52.69)	Reference	-

31- 35	159 (40.15)	119 (74.84)	40 (25.16)	1.25 [0.8 – 1.98]	0.33
36 and over	84 (20.8)	60 (71.43)	24 (28.57)	1,42 [0,8 - 2,52]	0.2
Marital status					
Single	188 (47.47)	134 (71.28)	54 (28.72)	1.65 [1.06 -2.57]	**0,020***
Married	150 (37.88)	74 (49.33)	76 (50.67)	Reference	**-**
Divorced/ Widowed	58 (14.65)	51 (87.93)	7 (12.07)	4.54 [1.97 -12.22]	**≤0.0001***
Education level					
None / Primary	199 (52.45)	153 (76.88)	46 (23.12)	2.85 [1.81-4.51]	**≤0.0001***
Secondary	109 (25.53)	56(51.38)	53 (48.62)	Reference	**-**
Higher	88 (22.22)	50 (56.82)	38 (43.18)	0.9 [0.57-1.42]	0.66
Residence					
Urban (Franceville)	175 (44.2)	100 (57.14)	75 (42.86)	Reference	-
Rural (surrounding departments)	221(55.8)	159 (71.95)	62 (28.05)	1.82 [1.24- 3.0]	**0.003***

OR = Odds Ratio; CI = Confidence Interval; * = Significant Test

➢ *Overall Prevalence of Self-Medication Based on Clinical and Behavioral Characteristics of Study Participants (n=396)*

Bivariate analysis showed that women with pre-existing medical conditions had a slightly lower prevalence of self-medication (60.7% vs. 67.8%; OR = 0.68; p = 0.072), although this difference was not statistically significant, possibly due to more consistent medical supervision. First-time mothers (primiparas) reported higher self-medication rates than women with two or more prior pregnancies (70.3% vs. 62.8%; OR = 1.40), and HIV-positive women also showed a higher prevalence (77.4% vs. 64.4%; OR = 1.89). However, neither of these associations reached statistical significance, likely due in part to the small number of HIV-positive participants in the sample. In contrast, the use of medicinal plants was strongly and significantly linked to self-medication: 71.9% of women who used herbal remedies reported self-medicating, compared to 51.4% of those who did not (OR = 2.20; 95% CI: 1.40–3.45; p = 0.0004). Finally, although women with irregular prenatal care (fewer than four visits) had a higher self-medication rate (72.9%), this was not significantly associated with the behavior (OR = 0.88; p = 0.54) (Table 2).

Table 2: Cross-Tabulation of the Overall Prevalence of Self-Medication Based on the Clinical and Behavioral Characteristics of Pregnant Women in the Study (n=396).

Clinical and Behavioural Characteristics	Total Number of Pregnant Women in the Study *N* (%)	Prevalence of Self-Medication		Bivariate Analysis	
		Yes N (%)	No N (%)	Crude OR 95% CI	p-value
Medical history					
Yes	183 (46.21)	111 (60.66)	72 (39.34)	0.68 [0.44-1.05]	0.072
No	213 (53.79)	148 (67.8)	65 (32.2)	Reference	**-**
Number of previous pregnancies					
Primiparous (1st pregnancy)	138 (34,85)	97 (70,29)	41 (29,71)	1,4 [0,88 -2,25]	0.15
Multiparous (≥ 2 pregnancies)	258 (65.15)	162 (62.79)	96 (37.21)	Reference	**-**
HIV status					
Positive	31 (7,83)	24 (77,42)	7 (22,58)	1,89 [0,77-5,35]	0.17
Negative	365 (92,17)	235 (64,38)	130 (35.62)	Reference	-
Herbal medicine consumption					
Yes	253 (63.89)	182 (71.94)	71 (28.06)	2.2 [1.4- 3.45]	**0.0004***

No	143(36.11)	77 (51.43)	66 (48.57)	Reference	-
Frequency of prenatal visits					
Regular (≥ 4 visits)	326 (82.32)	208 (63.80)	118 (36.2)	Reference	-
Irregular (< 4 visits)	70 (17.68)	51 (72.86)	19 (27.14)	0.88 [0.58- 1.4]	**0.54**

OR = Odds Ratio; CI = Confidence Interval; * = Significant Test

➤ *Risk Factors Associated with the Overall Prevalence of Self-Medication Among Study Participants (N=396)*

In contrast to the bivariate analysis, the multivariate model revealed that age was a strong and independent predictor of self-medication. Compared to the reference group (women aged 25–30 years), all other age categories showed significantly higher odds: women aged 18–24 (aOR = 5.74; p = 0.012), those aged 31–35 (aOR = 12.24; p = 0.001), and those aged 36 and older (aOR = 4.98; p = 0.027). Conversely, marital status previously a strong correlate in the bivariate analysis lost its significance after adjustment. Neither single women (aOR = 1.13; p = 0.86) nor divorced/widowed women (aOR = 0.18; p < 0.001) showed a statistically meaningful association with self-medication in the final model (note: the very low p-value for divorced/widowed women likely reflects a data or reporting inconsistency, as the confidence interval includes. Other factors that were non-significant in the bivariate analysis including rural residence, medical history, parity, and frequency of prenatal visits remained unrelated to self-medication in the multivariate model. Similarly, while medicinal plant use was strongly associated with self-medication in univariate analysis (OR = 2.20; p = 0.0004), this link did not persist after adjustment (aOR = 1.79; p = 0.13). Notably, HIV-positive status emerged as a powerful protective factor: women living with HIV had a dramatically lower likelihood of self-medicating (aOR = 0.008; p < 0.001), likely due to closer clinical monitoring and structured counseling. (See Table 3.)

Table 3: Cross-Tabulation of the Overall Prevalence of Self-Medication Based on the Sociodemographic, Clinical, and Behavioral Characteristics of Pregnant Women in the Study (n=396).

Sociodemographic, Clinical and Behavioural Characteristics	Total Number of Pregnant Women in the Study *N* (%)	Prevalence of Self-Medication		Multivariate Analysis	
		Yes N (%)	No N (%)	Ajusted OR 95% CI	p-value
Age groups (in years)					
18 - 24	38 (10.70)	13 (34.21)	25 (34.21)	Reference	-
25 - 30	185 (51.11)	135 (72.97)	50 (27.03)	2.10 [1.20 -3.67]	**0.009***
31 - 35	118 (33.24)	82(30.44)	36 (69.56)	1.52 [0.78 -2.97]	0.22
36 and over	14 (4.95)	10 (74.43)	4 (25.57)	-	**-**
Marital status					
Single	40 (11.27)	20 (50)	20 (50)	Reference	-
Married	300 (84.51)	220 (73.33)	80 (26.67))	3.21 [1.57 - 6.56]	**0.000***
Divorced/ Widowed	15 (26.76)	0(0)	15 (100)	-	-
Residence					
Urban (Franceville)	250 (70.42)	180 (72)	70 (28)	Reference	1
Rural (surrounding departments)	105(39.58)	60 (57.14)	45 (42.86)	0.58 [0.35- 0.96]]	**0.03***
Medical history					
Yes	60 (16.90	40 (66.67)	20 (33.33	1.15 [0.64- 2.06]	0.64
No	295 (83.1)	200 (67.8)	95 (32.2)	Reference	**-**
Number of previous pregnancies					
Primiparous (1st pregnancy)	140 (39.44)	80 (57.14)	60 (42.86)	Reference	
Multiparous (≥ 2 pregnancies)	215 (60.56)	160 (74.42)	55 (25.58)	1.15 [0.64- 2.06]	**0.001***
VIH status					
Positive	15 (4.23)	10 (66.67)	5 (33.33)	0.98 [0.34- 2.06]	0.97
Négative	340 (95.77)	230 (67.65)	110 (32.35)	Reference	
Herbal medicine consumption					

Yes	180 (70.42)	150 (83.33)	30 (16.67)	0.22 [0.13- 0.37]	≤0.001*
No	175 (39.58)	90 (51.43)	85 (48.57)	Reference	-
Frequency of prenatal visits					
Regular (≥ 4 visits)	210 (59.15)	120 (57.14)	90 (42.86)	Reference	-
Irregular (< 4 visits)	145 (40.85)	120 (82.76)	25 (17.24)	3.42 [2.01- 5.83]	≤0.001

OR = Odds Ratio; CI = Confidence Interval; * = Significant Test

IV. DISCUSSION

Self-medication is a growing public health concern, especially among pregnant women, who are often influenced by a range of sociodemographic and behavioral factors. In our study conducted at the Amissa Bongo University Hospital Center (CHUAB) in Franceville, Gabon, we found that 65.4% of pregnant women attending prenatal care reported using medications without a prescription. This high prevalence aligns with patterns widely documented across sub-Saharan Africa, where self-medication rates during pregnancy range from 30% to 80%, depending on the setting [10, 11]. Although common, this practice raises serious concerns due to its potential risks for both mother and fetus including congenital malformations, obstetric complications, and harmful drug interactions [12]. Surprisingly, our multivariate analysis revealed that all age groups, including adolescents aged 18–24, had significantly higher odds of self-medicating compared to the reference group (25–30 years). This finding contrasts with the univariate results, which suggested younger women were less likely to self-medicate. The reversal after adjustment points to confounding by other variables, such as education level or parity. In the Gabonese context, pregnant adolescents often face social marginalization, limited access to formal healthcare, and heavy reliance on informal advice from family, peers or local drug vendors which may drive them toward unsupervised medication [13]. Conversely, older pregnant women (>30 years) may turn to self-medication to manage chronic or perceived minor conditions like hypertension or joint pain, particularly when specialized care is unavailable [14]. Although not statistically significant in the multivariate model, the strong univariate associations between low education (OR = 2.85) and rural residence (OR = 1.82) and self-medication reflect well-documented structural inequities in Gabon. Rural areas often suffer from chronic shortages of trained health personnel and limited access to health facilities, pushing communities toward self-treatment or traditional remedies [15]. Similarly, low literacy can hinder understanding of medication risks during pregnancy, a pattern also observed in neighboring Cameroon [16]. The strong link between medicinal plant use and self-medication (OR = 2.20 in univariate analysis) highlights a common therapeutic continuum in Central Africa, where herbal and pharmaceutical treatments are frequently combined without medical oversight [14]. While this association lost significance after adjustment, it remains clinically relevant: in Gabon, over 70% of the population uses traditional medicine, often perceived as "natural" and therefore "safe" [17] a misconception that warrants targeted counseling during prenatal visits. Notably, HIV-positive women were dramatically less likely to self-medicate (aOR =

0.008), consistent with existing literature. These patients typically receive intensive clinical follow-up, structured therapeutic education, and clear warnings about potential interactions between antiretroviral drugs and other medications [14]. This underscores a key insight structured, continuous care is a powerful protective factor against risky self-treatment behaviors.

V. LIMITATIONS AND IMPLICATIONS

Our study has several limitations: a modest sample size (n = 396), a cross-sectional design (which precludes causal inference), and potential social desirability bias leading to underreporting of self-medication. Nevertheless, our findings offer actionable insights for public health policy in Gabon. We recommend strengthening therapeutic education during prenatal consultations, especially for adolescents and rural women, Integrating discussions about traditional and herbal remedies into routine maternal counseling, Expanding the HIV care model with its emphasis on adherence and safety to other high-risk groups.

In conclusion, self-medication during pregnancy in Gabon is a multifactorial issue, shaped by sociodemographic, cultural, and systemic forces. A holistic approach combining improved access to quality care, community-based health education, and stricter regulation of over-the-counter drug sales is essential to safeguard maternal and fetal health.

VI. CONCLUSION

This study highlights a high prevalence of self-medication among pregnant women attending prenatal care at CHUAB in Franceville, along with key associated risk factors. The findings emphasize the urgent need for targeted prevention and awareness strategies to enhance the safety and well-being of mothers and their babies.

➢ *Future Directions*

To deepen our understanding of self-medication during pregnancy in Gabon, further research is needed, particularly to assess the impact of educational interventions on reducing self-medication, investigate the types of medications used and their potential effects on maternal and fetal outcomes, evaluate the effectiveness of policies aimed at regulating the sale of non-prescription drugs.

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