

# Evaluation of Mothers' Knowledge of Pre- and Postnatal Preventive Care in Rural Areas: A Cross-Sectional Study at the Soubakaniédougou Medical Center in Burkina Faso

Millogo Jean de la Croix<sup>1</sup>, Johnson Ameswué Kpogbé Ermel<sup>2,3</sup>, Sanou Jean de Dieu<sup>1</sup>, Méré Godé Sabi Tokobou William<sup>1</sup>, Togbé Eric Serge Alihonou<sup>1</sup>, Yaméogo Rélwendé Barnabé<sup>1</sup>, Komboigo Evelyne<sup>1,4</sup>, Dembélé Adama<sup>1,4</sup>, Somé Der Adolphe<sup>1,4</sup>

<sup>1</sup>Obstetrics and Gynaecology, Sourô Sanou University Hospital (CHUSS), Bobo-Dioulasso, Burkina Faso

<sup>2</sup>Yackoley Institute, Ouagadougou, Burkina Faso

<sup>3</sup>National School for Public Health and Epidemiological Surveillance Technicians (ENATSE), University of Parakou, Parakou, Benin

<sup>4</sup>Higher Institute of Health Sciences (INSSA) University of Nazi BONI, Bobo-Dioulasso, Burkina Faso

Email: millogojeandelacroix@hotmail.fr

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## Abstract

**Introduction:** To improve maternal health, it is essential to have adequate infrastructures and qualified personnel. However, women, especially in rural areas, need to know about and adopt prenatal and postnatal care. Hence the importance of our study. **Material and method:** This was a cross-sectional, prospective, descriptive study with evaluative aims running from April 1 to August 31, 2019 in the Soubakaniédougou Medical Center of the Banfora health district. We assessed mothers' knowledge of pre- and postnatal preventive care. Data were collected by interview, and according to the child's health record used for the Prenatal Consultation (CPN). **Results:** The women in our study were relatively young, with an average age of  $26.15 \pm 3.3$  years. The youngest mother was 16 and the oldest 42. The average gestational age was 3.48 pregnancies, with a range of 1 to 11 pregnancies. All women knew that pregnancy should be monitored in a health center, and 83.3% of them thought that the required number of prenatal visits was 4. The majority of women in our study had undergone at least one CPN during their pregnancies. Family planning (FP) was known by over 81% of women and adopted by over 53%. **Conclusion:** Illiteracy is an obstacle to the use of prenatal care by women living in rural areas. In our study, we found that although illiterate, most women understood and adopted ANC as part of their pregnancy follow-up.

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## Keywords

Pre- and Postnatal Care, Rural Environment, Burkina Faso

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### 1. Introduction

Antenatal care is defined as the interventions that a pregnant woman receives from a healthcare professional [1] [2]. With the professionalization of obstetric care and the improvement of maternal and perinatal health, it has become a pivotal factor in the prevention of complications related to pregnancy and childbirth [3]. In Sub-Saharan Africa, only a third of women give birth in health centers, and just 13% receive an antenatal care visit (ANC) within two days of delivery [4]. Because women give birth at home or in hospital, ANC is often unavailable. In Burkina Faso, the quality and availability of healthcare services are problematic, particularly in rural areas, and have been identified as hampering access to essential obstetric care, especially for the poorest women [5]. Low utilization of health services, particularly maternal health services, contributes to the stalling of various actions aimed at improving maternal and neonatal health indicators. Three major delays have been identified as slowing down the decline in maternal mortality: Delay in deciding to consult health services; delay in arriving at the health facility, and delay in receiving adequate treatment at the health facility level [5] [6]. These delays are explained by a variety of cultural, psychosocial, economic, structural and political barriers, most of which are still poorly appreciated, preventing effective access to care [5] [7]; yet antenatal care is essential to combat maternal and neonatal mortality in Sub-Saharan Africa (SSA), and particularly in Burkina Faso [8]. Prenatal care is one of the four pillars of the WHO “Safe Motherhood” program; the other three being family planning, safe and hygienic delivery and emergency obstetric care [8] [9]. They promote healthy behaviors and parenting skills in women, as well as preventing and treating obstetric complications [10]. They also help reduce the incidence of maternal and neonatal morbidity and mortality [1] [10]. Pregnancy care is an opportunity to maximize the continuum of care, and is the gateway to the health system for many African women. They provide an opportunity to promote the benefits of professionally assisted delivery and to encourage women to seek postnatal care [11]. The first ANC should be performed during the first three months of pregnancy, before 14th weeks of pregnancy, and the last ANC close to the expected date of delivery [10]. The first ANC confirms the pregnancy with the woman and assesses the risk level of the pregnancy. The next three ANC are designed to diagnose, screen for existing disease, prevention of complications and health promotion for the future mother [10]. This model is used in most African countries, notably Burkina Faso. The low uptake of prenatal care in Burkina Faso has a few consequences. Firstly, it limits the various actions undertaken to ensure the smooth progress of pregnancy and childbirth, and considerably hampers the continuum of maternal, neonatal and child health (MNCH) care [5]. It also con-

tributes to the slowdown in the country's health and humanitarian development, and limits the use of medically assisted childbirth, which in 2010 was 67% nationwide and 39% for women living in rural areas [5]. It is therefore relevant to address the determinants of health service utilization in Sub-Saharan Africa, particularly with regard to MNCH, given that maternal and neonatal mortality remain a major public health problem [9] [12] [13]. Health education, along with enhancing mothers' understanding of their own health, is a preferred strategy employed in various countries to enhance maternal and child health [14]. In Burkina Faso in 2024, despite efforts such as free healthcare for pregnant women and children under five, maternal and perinatal deaths persist. Indeed, from 905 deaths in 2023, the figures have risen to 926 in 2024. These incidents are due to three factors: delays in consultation, delays in travel to health facilities, delays in treatment at these facilities, etc. [15].

A better knowledge of prenatal care by women, especially those living in rural areas, will undoubtedly improve the use of health services in general and ANC in particular, with a view to reducing maternal morbidity and mortality in our country. Within this context, the study aims to assess mothers' knowledge of preventive care for women.

## 2. Materials and Methods

This study was cross-sectional and descriptive with evaluative objectives, conducted from April 1 to August 31, 2019, at the Soubakaniédougou Medical Center in the Banfora health district. This facility is classified as a first-level health center within the Burkina Faso health pyramid. It is situated in the rural commune of Soubakaniédougou, located in the Cascades region. The evaluation focused on mothers' knowledge of pre- and postnatal preventive care. The study population consisted of women of childbearing age. The study's inclusion criteria encompassed all women, irrespective of their pregnancy status, who attended consultations during the study period. This includes those who were currently receiving or had previously received antenatal care at our healthcare facility. Systematic sampling was employed consistently throughout the duration of the study. We systematically recruited all pregnant women attending antenatal clinics, as well as patients receiving postnatal care during the survey period, who agreed to undergo our questionnaires and find the interviewer in place. We thus recruited one hundred and fifty (150) women who presented themselves at the center.

Data collection was conducted prospectively, utilizing questionnaires administered to the women. Additional data collection was based on analysis of the child's health record used for ANC.

The data collected was entered and analyzed on a computer using Epi-info software. Averages, percentages and standard deviations were calculated. Results were presented in tables and figures and expressed either as percentages for qualitative variables, or as mean plus or minus standard deviation with their 95% confidence intervals for continuous quantitative variables. Free, verbal

and informed consent was always obtained from study participants. Data were collected using a data collection form guaranteeing confidentiality and anonymity. As far as data processing was concerned, no names or identifying information were mentioned. Once the data had been entered, they were coded. The data collection forms were then kept under lock and key. Administrative authorization was obtained to conduct the study. This study did not disturb the well-being of the population; rather, it contributed to improving the quality of care and life prognosis of the patients.

### 3. Results

#### 3.1. Socio-Demographic Data

During our study, 150 women were surveyed. The sample ranged in age from 16 to 42, with an average age of  $26.15 \pm 3.3$ . Most women were married, while 2% were single and 4% were cohabiting. The women in our study were mainly housewives, closely followed by farmers, and 10% were students. The mothers were not literate (72%), compared with 10% who had reached secondary school. **Table 1** summarizes the numbers and proportions of socio-demographic variables.

#### 3.2. Obstetrical History

The average gestational age was 3.48 pregnancies, with a range of 1 to 11 pregnancies. At least one woman had a live child in 32% of cases. Two of them had 9 living children, and 11 women had 6 children (**Figure 1**). At least 45 women had lost one of their children. **Table 2** shows the distribution of women by obstetrical history.

**Table 1.** Summary of numbers and proportions of socio-demographic variables.

Variable	Workforce	Proportion (%)
<b>Marital status (n = 150)</b>		
- Bride	137	91.3
- Concubinage	06	4
- Single	03	2
- Divorced	04	2.7
<b>Occupation (n = 150)</b>		
- Housekeeper	62	41.3
- Grower	53	35.3
- Breeder	09	6
- Retailer	06	4
- Student	15	10
- Hairdresser	01	0.66
- Artisan	02	1.3
- Seamstress	02	1.3

## Continued

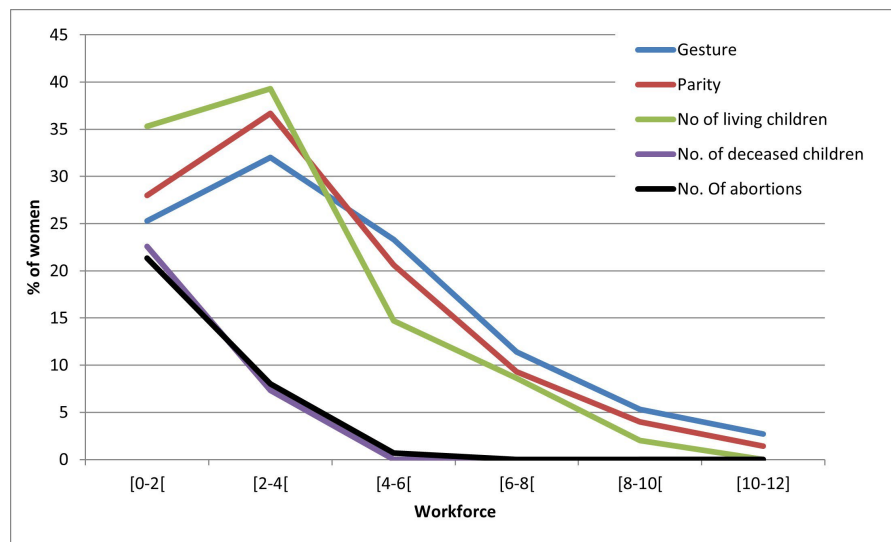
Level of education (n = 150)		
- No instruction	108	72
- Primary	15	10
- College	15	10
- Lycée	10	6.7
- University	0	0
- Koranic school	02	1.33

**Table 2.** Distribution of women according to obstetrical history.

Variables	Workforce	Proportion (%)
<b>Gesture (n = 150)</b>		
- 1	38	25.3
- 2	28	18.7
- 3	20	13.3
- 4	23	15.3
- 5	12	8
- 6	13	8.7
- 7	04	2.7
- 8	05	3.3
- 9	03	2
- 10	01	0.7
- 11	03	2
- 1	38	25.3
<b>Number of living children (n = 150)</b>		
- 0	05	3.3
- 1	48	32
- 2	32	21.3
- 3	27	18
- 4	15	10
- 5	7	4.7
- 6	11	7.3
- 7	02	1.3
- 8	01	0.7
- 9	02	1.3
<b>Number of children who died (n = 150)</b>		
0	105	70
1	34	23.3

Continued

2	10	6.8
3	01	0.7
<b>Number of abortions (n = 150)</b>		
0	105	
1	32	
2	10	
3	02	
4	01	



**Figure 1.** Distribution of women by gender, parity, number of live and dead children and number of abortions.

### 3.3. Prenatal Preventive Care

All women knew that the pregnancy had to be monitored in a health center, and 83.3% of them thought that the number of prenatal visits required was 4. Only two women thought that the pregnancy had to be monitored every 9 months. Most women (90%) thought that the first ANC should start in the first trimester of pregnancy, compared with 9.3% in the second trimester. Eighty eight percent (88%) of women were unaware of the tetanus vaccine administered to pregnant women. All women found it important to give birth in a health center; however, 25% of them had already given birth at home for reasons such as: labor too fast, lack of means of transport, lack of an attendant, health worker strike, rainy seasons, traditional home birth. Among those who had given birth at the maternity hospital, 15.3% wished to be assisted by a magnetician, 22% by a midwife and 63% were impartial. With regard to family planning (FP), 81% of women knew about FP, and 53% had already used a contraceptive method. Among these methods, injectables were the most widely used (54%) followed by implants (36%). **Table 3**

shows women's use of contraceptive methods.

**Table 3.** Distribution of women by contraceptive method.

Contraceptive methods (n = 78)	Workforce	Proportion (%)
Pills	4	5.1
Injectables (depopovera)	42	53.8
Implant (jabelle)	28	35.9
DIU PP	2	2.6
Cycle necklace	2	2.6
<b>Total</b>	<b>78</b>	<b>100%</b>

### 3.4. Reasons for Not Using/Adopting Contraceptive Methods

Those who had not adopted contraceptive methods cited several reasons: The desire for motherhood, refusal of the spouse, lack of information on FP, cultural and religious reasons, some thinking that "FP is not good for a woman". Whereas 98.4% of the women surveyed thought that birth spacing is important for a mother. **Table 4** shows the reasons women gave for rejecting FP.

**Table 4.** Women's reasons for rejecting FP.

Reason given	Number/25	(%)
Maternity desire	4	16
Ignorance of FP	5	20
Not decided	7	28
PF Poor	1	4
Company name	1	4
Spouse's refusal	6	24
No reason	1	4
<b>Total</b>	<b>25</b>	<b>100%</b>

### 3.5. Impact of Health Education Messages

Women's health information and awareness messages were conveyed for the benefit of women. The majority of women (98%) knew how to prevent malaria and anemia in pregnant women. Regarding post-partum follow-up, all the women in our study knew that they needed to be monitored after delivery. However, many (81%) were unaware of the vaccines used in Burkina Faso's Expanded Program on Immunization (EPI). **Table 5** shows the distribution of women according to health information.

### 3.6. Number of ANC's Performed

Each woman had undergone at least one ANC during her pregnancy. Four ANC's were performed for the majority of women, as shown in **Table 6**.

**Table 5.** Distribution of women according to health information.

Health education messages known to women	Numbers (n = 150)	Proportion (%)
Pregnancy follow-up	145	96.7
Family planning	122	81.3
Postnatal care	147	98
Tetanus vaccination	28	18.7
Malaria	148	98.7
<b>Total</b>	<b>150</b>	<b>100</b>

**Table 6.** Breakdown of women by number of ANC performed.

Number of ANCs performed (n = 150)	Workforce	Proportion (%)
1	2	1.33
2	4	2.66
3	16	10.66
4	121	88.66
5	6	4
6	1	0.66
<b>Total</b>	<b>150</b>	<b>100</b>

### 3.7. Women's Satisfaction with Health Care Services at Soubakaniédougou CM

Only 3% of women were dissatisfied with maternity care services, compared with 97% who were satisfied.

## 4. Discussion

The women in our study were relatively young, with an average age of 26.15 years, with 16 years for the youngest mother and 42 years for the oldest. Djigimdé in Burkina Faso [16] found a mean age of 26.04, as did Marietou Niang [17] (participants ranged in age from 18 to 40). Sangaré and col. in Mali [18] also found a young average age of 20 in his study. According to Ali and col. [19], this could be explained by the fact that women who have had many children tend not to use health services during pregnancy, because they perceive themselves to be more experienced and confident than first-time mothers, since the woman's age at pregnancy is a determinant of the use of antenatal care services [19]. Generally, women who lead a traditional life and those who have had their first childbirth are less likely to use antenatal care services [20]-[22]. Our study took place in a rural environment, so the women were mainly housewives or farmers. Our results corroborate those of Djigimdé, where more women were farmers. We also noted a significant proportion of pregnancies in schools, with 10% of female students. Thus, most women were married, as opposed to 2% who were single. Sangaré [16]

[18] also found that in 9 out of 10 cases, the women were married. The mothers were not literate (72%), compared with 10% who had reached secondary school in our study. According to Sangaré [18], the vast majority of his study population had never attended school (86.2%), similar to the findings of Coulibaly [16] [23] [24]. Illiteracy was a major problem for the smooth running of ANC, as women did not always understand the content and importance of ANC. The average gestational age was 3.48 pregnancies, with a range of 1 to 11 pregnancies. The total number of pregnancies in the women ranged from one to thirteen, with an average of 4.6 pregnancies [16]. According to Marietou Niang [17], the distribution of the number of pregnancies ranged from one to eight pregnancies. In our study, all women knew that a pregnancy should be monitored in a health center, and 83.3% of them thought that the number of prenatal visits required was 4. Only two women thought that the pregnancy should be monitored every 9 months. The number 4 of ANC recommended during the recentered prenatal consultation (CPNR) was reported by 78.3% of women according to Sangaré [18]. As Sangaré's study also shows, eight (8) out of ten (10) women had been informed at the ANC about malaria prophylaxis with sulfadoxine + pyrimethamine (SP) during pregnancy, and 8 out of 10 women had taken malaria prophylaxis with SP. In 8 cases out of 10, they had received information on anti-anemic prophylaxis with Iron + Folic Acid (FAF), and 94.4% of women had complied with the instructions. Pregnancy and childbirth are considered to be private events and the exclusive domain of women. The presence of male health professionals in reproductive health services would hinder access to antenatal care [11]. This was not the case in our study, as over 60% of the women were impartial in their choice of birth attendant. The majority of women in our study had undergone at least one ANC during their pregnancies, which testifies to the interest and importance of ANC for them. This was also found by Sangaré et al. in their study, where for the majority of these women ANC is important both for the mother and the fetus.

In our study, 25% of women said they had already given birth at home. The reasons they gave were as follows: Labour too fast, lack of means of transport, lack of an attendant, health worker strike, rainy seasons, traditional home birth. This could be explained in part by the fact that the study took place in a rural environment, where there are still mostly elderly women who perform deliveries in the traditional way in our context. Also, as the rainy season is a period of intense agricultural activity for the rural population, pregnant women may find themselves alone without assistance when labor begins. Low socio-economic status could sometimes explain the lack of means of transport to the health center. All these factors, which act as socio-cultural barriers to care, would influence maternal and neonatal morbidity and mortality, hence the importance of assessing women's knowledge of prenatal care in this population, in order to help improve this maternal health indicator.

Family planning (FP) is a key strategy for reducing maternal mortality. The adoption of FP by the population represents a major challenge for the healthcare

system in Burkina Faso [25]. In our study, 81% of women knew about FP, and 53% had already used a contraceptive method. And among the methods, the injectable (Depopovera) was the most used (54%) of cases, followed by the implant (36%). In 2016, health facilities across the country recorded 1,459,344 users (both new and returning) of modern contraceptive methods, resulting in a utilization rate of 31.7% [25]. Our results could be explained by the fact that the women, although living in rural areas, had benefited from FP awareness-raising by health workers, but also by associations working in this field. In relation to the different methods used, our results are no less different, as we found greater use of Depopovera (36.1%) followed by jadelle (30.8%) according to national statistics.

## 5. Conclusion

In any society, pregnancy is a special physiological event that attracts the attention of couples and families alike, and it is therefore essential that it is properly monitored. Prenatal consultations are one of the four pillars of safe motherhood. In order to reduce the maternal mortality rate in rural areas, it is necessary to ensure prenatal consultation and the provision of adequate care services for eutocatal delivery; but it is also necessary for women to understand the importance of ANC in the life of their pregnancy. Indeed, non-optimal use of ANC services obstructs the initiation of the prenatal care continuum, an essential link in the reduction of maternal and perinatal morbimortality, and contributes to the low rate of assisted childbirth. In our study, we found that although illiterate, most women have understood and adopted ANC as part of their pregnancy follow-up.

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## Authors' Contributions

MJC and ADS conceptualized and designed the study. MJC developed the first draft of the manuscript. EAKJ, JDS revised the manuscript and made a major contribution. WTMGS, ESAT, BRY, EK, AD made major contributions to the manuscript. AD and ADS supervised the study. All the authors revised the final version of the manuscript.

## Conflict of Interest

The authors declared no conflict of interest.

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### List of Abbreviations

<b>CPN</b>	Prenatal Consultation
<b>FP</b>	Family Planning
<b>SPN</b>	Prenatal Care
<b>ANC</b>	antenatal care
<b>ASS</b>	Sub-Saharan Africa
<b>SMNI</b>	Maternal, Newborn and Child Health
<b>EPI</b>	Expanded Programme on Immunization
<b>CPNR</b>	Refocused Prenatal Consultation
<b>SP</b>	Sulfadoxine Pyrimetamine