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Determinants of the Low Proportion of Pregnant Women Seen for First-Trimester Prenatal Care at Koudougou Urban Medical Center, Burkina-Faso

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Abstract

Introduction: Antenatal care (ANC) contributes to the reduction of maternal and neonatal morbidity and mortality. The study aimed to investigate the determinants of the low proportion of pregnant women seen for first antenatal care in the first trimester of pregnancy at the urban medical center of Koudougou, Burkina Faso. **Materials and Methods:** This was a cross-sectional study with data collection from June 08 to August 18, 2021. It involved a sample of 302 participants including 280 pregnant women and 22 maternity providers. Semi-structured individual interviews, non-participant observation, and a literature review were used. **Results:** Pregnant women age 20 and over, knowledge of the date of their last menstrual period, and knowledge of the antenatal care calendar were associated with coming into contact (1) with Antenatal care in the first trimester of pregnancy. In addition, there was a lack of availability of antenatal care services, inadequate reception of clients, and shortages of health products. **Conclusion:** There is a need to revisit strategies for communicating with women about ANC, reorganizing ANC services, and improving ANC services.

Keywords

Least Risk Maternity, Maternal and Neonatal Health, Maternal and Neonatal

Mortality, Maternal and Neonatal Morbidity, Reception

1. Introduction

Antenatal care (ANC) is considered a set of visits that a woman makes during pregnancy to benefit from a certain number of interventions provided by a qualified healthcare professional, in order to ensure her health and that of her baby [1] [2]. More than one in four maternal deaths is due to pre-existing medical conditions. These pre-existing medical conditions include anemia, diabetes, hypertension, HIV infection, and malaria [3]. Most of these deaths could be prevented by good ANC, which is one of the pillars of low-risk motherhood [1].

The World Health Organization (WHO) recommends eight (08) ANC contacts during pregnancy, with the first contact within the first twelve (12) weeks of pregnancy [2]. Adherence to the ANC schedule is vital for better prevention of maternal and neonatal morbidity and mortality. This involves screening for and treating any pregnancy-related conditions or complications. Prenatal care, which begins in the first trimester of pregnancy, plays a decisive role in the rest of the pregnancy.

Unfortunately, in Burkina Faso, many pregnant women do not make use of this service early enough. This has unfortunate consequences, adding to the burden of maternal mortality. Faced with this situation, the present study was conducted to investigate the determinants of the low proportion of pregnant women seen for first antenatal care during the first trimester of pregnancy at the Koudougou urban medical center, in order to enlighten political and health decision-makers.

2. Methodology

2.1. Type of Study and Data Collection Period

This was a cross-sectional study conducted at the MedicaCenter of Koudougou (CMUK) in the Koudougou health district of the Centre-Ouest health region in Burkina Faso.

2.2. Inclusion Criteria

The study included: a) health care providers (midwife, licensed birth attendant) at the CMUK maternity hospital offering antenatal care and with at least three (03) months' seniority in the post; b) pregnant women coming for the first time during the current pregnancy for ANC during the survey period. Participants gave verbal consent before data collection.

2.3. Sample and Sampling

A comprehensive sampling of 22 providers was carried out. The sample size of pregnant women was determined based on the total number of pregnant women

seen in ANCin the first trimester (contact 1) during the year 2020, which was 1,017. According to KREJCIE and MORGAN's table [3], we estimated 280 pregnant women to be surveyed.

We carried out consecutive recruitment of all pregnant women seen at first contact (contact 1) until all 280 women were reached within the data collection period.

3. Methods and Data Collection Techniques

3.1. Two Study Methods Were Used: a Survey and a Literature Review

The survey used two techniques during the present study: individual interviews (using a self-administered semi-structured questionnaire for staff and a semi-structured questionnaire for pregnant women) and observation of practices (using an observation grid for healthcare staff).

As for the document review as the second study method, a content analysis of the documents used (register, posters, and notebooks) was carried out using a data collection sheet.

The data collection tools were pre-tested from April 05 to 10, 2021 at the Koudougou sector 5 urban health and social promotion center. Data collection was carried out from June 08 to August 18, 2021, at the CMUK maternity hospital, in Burkina Faso.

3.2. Data Collection Methods

Two interviewers were recruited, trained, and assigned, one for interviewing pregnant women and the other for questionnaire administration, observation, and document review.

Ethical aspects

Authorization for the survey was obtained from the Regional Director of Health and Public Hygiene for the Centre Ouest region (bearing the number N° 2021-94 /MS/RCOS/DRS dated 03 June 2021). The heads of the various care units were informed of the survey by the District Medical Officer. Similarly, the consent of respondents was required before data collection. The anonymity and confidentiality of the information collected were ensured by coding identities and limiting access to data to investigators and the needs of the survey.

Data management and analysis methods

Our dependent variable is the proportion of pregnant women seen for initial antenatal care during the 1st trimester of pregnancy at the Koudougou Medical Centre. It is influenced by two (02) independent variables: factors related to services; and factors related to pregnant women.

We began by manually counting the data to assess completeness and accuracy. Then, a data entry mask was designed on Microsoft Office Excel version 2019 for data recording and analysis. Finally, for statistical tests, we used Pearson's Chi2 to establish the statistical link between a variable and the first contact (contact 1)

of ANC in the first quarter.

4. Results

A total of 280 pregnant women and 22 healthcare providers from the CMUK health area were in the study. The overall level of participation in the study was 100.00%.

4.1. Determinants Related to Pregnant Women

Relationship between gestational status and arrival at SPN at contact 1.

Regarding gestational status, 25.84% of women were primigravida, 43.82% were paucigravida and 30.34% were multigesta (Table 1).

4.2. Relationship between Marital Status and ANC Attendance at Contact 1

Table 1 above shows that 84.64% of pregnant women who came to ANC at contact 1 were married. Of these, 32.91% had come in the first trimester of pregnancy, compared with 25.58% of unmarried women.

Relationship between women's level of education and attendance at ANC at contact 1.

Among pregnant women attending ANC at contact 1, 84.27% were educated (Table 1).

Table 1. Relationship between variables and ANC contact 1 in the first trimester of pregnancy.

Variables	SPN contact 1 in 1st quarter		Total	Chi test	P value
	Yes	No			
		Gestite			
Primigestes	23 (25.28%)	68 (74.72%)	91 (32.50%)		
Paucigestes	39 (35.45%)	71 (64.55%)	110 (39.29%)	0.6465	0.9955
Multigestes	27 (34.18%)	52 (65.82%)	79 (28.21%)		
		Marital status			
Bride	78 (32.91%)	159 (67.09%)	237 (84.64%)	0.0672	0.9994
Single	11 (25.58%)	32 (74.42%)	43 (15.36%)		
		Educational level of women			
Educated *	75 (36.23%)	132 (63.77%)	207 (73.93%)	4.6427	0.0325
Uninstructed	14 (19.18%)	59 (80.82%)	73 (26.07%)		
		Decision-making power			
Pregnant woman herself	39 (44.83%)	48 (55.17%)	87 (31.07%)	9.2449	0.7537
Husbands	44 (27%)	119 (73%)	163 (58.21%)		
Other person	06 (20%)	24 (80%)	30 (10.72%)		
		Knowledge of the CPN start period			
Yes	79 (38.16%)	128 (61.84%)	207 (73.93%)	11.415	0.0219
No	10 (13.70%)	63 (86.30%)	73 (26.07%)		

NB: *Instructed: primary, secondary, higher, literate.

Pregnant women's perception of pregnancy

Among the women surveyed, 6.07% stated that pregnancy should be concealed. The reasons given by the majority of women were shame, fear of being criticized and simply delaying the announcement of the pregnancy. On the other hand, 15.35% of pregnant women stated that their pregnancies had not been planned.

Traditional practices

The results of the study showed that 2.14% of women had been subjected to traditional practices. These practices included separating pregnant women from their spouses, bathing in decoction, wearing fetishes, and making traditional sacrifices. This was done as soon as the pregnancy was discovered.

Relationship between decision-making power and attendance at ANC at contact 1.

Of the pregnant women surveyed, 31.07% decided on their own to come for antenatal care (Table 1).

Results relating to women's knowledge of PND

Of the women surveyed, 30.35% knew their RDD, 73.93% knew the onset of PND, and 90.00% knew the signs of pregnancy. Among those who knew their last menstrual period (LMP), 83.33% of women aged 20 overcameANC at contact 1 in the first trimester of pregnancy ($p = 0.00000712$). Among those who knew the signs of pregnancy, 33.21% and 25.35% were able to cite three (03) and two (02) signs respectively. Of the 280 women surveyed, 85.00% knew that there were at least four (04) ANC contacts to be made during pregnancy; also, 71.00% knew at least one ANC advantage; furthermore, 7.99% knew three (03) danger signs during pregnancy, 33.93% two (02) signs, and 20.35% one (01) sign.

Concerning complications that may arise during pregnancy, 41.07% were aware of the existence of complications in the first trimester. Of these, 46.08% were able to cite two (02) complications and 53.91% one (01) complication.

As for diseases to be prevented during pregnancy, 82.14% of respondents were aware of them. Thus, 29.56% of respondents could cite three (03) illnesses, 40.43% could cite two (02), and 30% could cite only one illness. The reasons for late arrival at ANCContact 1 were: long waits at the health center, lack of knowledge, lack of decision-making power, and absence of health problems.

Relationship between "knowledge of ANCstart date" and "ANC attendance at contact 1".

Table 1 shows that 73.93% of the women surveyed were aware of the ANC start date. Of these, 38.16% came to contact 1 ANC in the first trimester of their pregnancy.

5. Healthcare Providers and Services

Professional characteristics of respondents

The CMUK maternity ward staff comprised 22 healthcare providers, including twelve (12) midwives (54.55%) and ten (10) auxiliary birth attendants (45.45%). With a seniority of at least 6 years, 52.00% of providers had a profes-

sional seniority of between 6 and 10 years. About seniority in the service, 33.00% of providers had been with the service for 01 to 05 years, and 38.00% for at least 10 years.

Providers' knowledge of prenatal care

At least 85.71% of maternity care providers were aware of the objectives of ANC, and 66.67% were aware of all its components. For 71.43% of providers, women should start ANC in the first trimester of pregnancy. For 28.57% of agents, women should start ANC as soon as pregnancy is diagnosed. Concerning prevention during pregnancy and danger signs during pregnancy, 90.48% of providers knew four (04) preventive treatments and 76.19% knew the five (05) danger signs.

Providers' attitudes to welcoming clients

Of the 22 providers, we were able to observe 20 agents, the other two being occupied with administrative tasks during the survey period. Table 2 shows that 90.00% of respondents had treated their clients with respect. The performance of all providers in relation to the elements of reception was 55.73%.

Table 2. Attitudes of the 20 providers observed in welcoming ANC.

Elements of appreciation (Home)	Services provided			
	Yes		No	
	n	%	n	%
The service provider greets the customer	12	60	08	40
Helps customers get settled	16	80	04	20
Reassures customers of confidentiality des information during the interview	04	20	16	80
Listens carefully to the customer	07	35	13	65
Helps customers express themselves better	09	45	11	55
Treats customers with respect	18	90	02	10
Total	68	55.73	54	44.26

Questioning practices

Of the 22 providers observed, all had asked for obstetrical history. Also, 80.00% had asked the pregnant woman for the RDD, and 30.00% had calculated the probable date of delivery (PDD). However, 55.00% of providers had not asked about the pregnant woman's concerns, and 30.00% and 20.00% had not asked for medical and surgical history respectively.

Gynaeco-obstetrical examination practices in ANC

Of the 22 providers observed, all had performed the vaginal examination. For 80.00% of providers, measurement of uterine height was performed; and 60.00% of providers assessed uterine size by touch combined with palpation. However, no provider had performed the speculum examination.

Results relating to the organization of ANC services

ANC activities were carried out every working day of the week from 07:30 to 12:00 in the health facility. It should be noted that these activities were not carried out during the 12:00 to 17:00 duty hours. The integration of activities was

effective in the health facility. Providers did not regularly carry out activities to promote ANC(awareness-raising, social mobilization, home visits). In addition, 55.35% of women surveyed found waiting times long.

Availability of free ANC products and inputs

ANC books, examination gloves, and the "Determine" acquired immunodeficiency virus (HIV) screening reagent were available in the department. Iron folic acid tablets (to prevent anemia), sulfadoxine-pyrimethamine tablets (to prevent malaria), and urine albumin test strips (for diabetes screening) were not available. In the event of breakage, a prescription was offered and given to the woman.

6. Discussion

This study investigated the determinants of the low proportion of pregnant women seen by ANC during the first trimester of pregnancy at the KoudougouUrban Medical Center (CMUK). However, it has methodological limitations, especially as it is cross-sectional. Also, certain determinants were not explored, such as the involvement of spouses and opinion leaders, and providers' working conditions. Finally, we explored practices through non-participatory observation, and in one pass, the providers would have modified their behavior due to the presence of the interviewer.

6.1. Determinants Related to Pregnant Women

Socio-demographic characteristics

In the present study, around one-sixth of women aged under 20 had come to contact 1 ANC in the first trimester of pregnancy. There was a statistically significant association between the "age" variable and "coming to ANC contact 1 in the 1st trimester of pregnancy". These results show the same trends as those of the study carried out by BADO [4] in the Tougan health district in Burkina Faso. Younger women found it shameful to carry a pregnancy, due to the changes in their physical state that pregnancy brings. This could explain why, according to MALEYA *et al.* [1], the absence of follow-up was 2.29 times higher among adolescents than among adult women in the Democratic Republic of Congo.

In terms of education level, more than four-fifths of educated women came to contact 1 ANC, and only two-fifths of educated women came to contact 1 ANC. There was a statistically significant relationship between the level of education and attendance at contact 1 ANC in the 1st trimester of pregnancy. According to MALEYA *et al* [1], the absence of antenatal care was 4.08 times higher among women with a low level of education (illiterate or primary) than among those with a high level of education. The low level of education of women in our study would appear to be an unfavorable determinant of the use of antenatal care services, hence the low coverage of early ANC.

In terms of gestational age, almost a quarter of primigravida women had attended ANC ANC at contact 1 in the 1st trimester of their pregnancy. There was no statistically significant link between gestational age and attendance at contact

1 ANC SPN in the 1st trimester of pregnancy. However, in Burkina Faso, KONKOBO [5] revealed that primigravida women were the most numerous in terms of late arrival at ANC in the Manni health district, due to a lack of knowledge of the signs of pregnancy.

About marital status, more than four-fifths of the women surveyed were married in the present study, of whom less than two-fifths came in the first trimester of their pregnancy. There was no statistically significant relationship between marital status and ANC attendance at contact 1 in the 1st trimester of pregnancy. According to some studies, ANC follow-up was more regular among women living in a union than those living alone [1] [6].

6.2. Pregnant Women's Perception of Reception

Reception was judged to be good, in contrast to the observation, which performed 55.73%. This contrast could be justified by the fact that pregnant women do not have the same perception of reception as health workers, as attested by several studies [7] [8] [9]. Reception is an important criterion for quality of care and could influence early recourse to FNC.

6.3. Pregnant Women's Perception of ANC Schedules

The present study revealed that around a quarter of pregnant women rated the days and times of ANC as suitable. The unsuitability of ANC schedules, combined with long waiting times, could demotivate pregnant women to make proper use of antenatal care services, resulting in late PNC. Moreover, as in the study by BAKOUAN [9], women found the waiting time at ANC long.

6.4. Traditional Practices

The present study revealed that almost all women claimed that there were no rites to perform during their pregnancies. This high percentage of women who did not perform rites during pregnancy would be an asset for early ANC. This result is close to that of GUEGUE [10], which was 96.57%. These results can be explained by the abandonment of customs and traditions in favor of so-called revealed religions.

6.5. Women's Decision-Making Power

Although there was no statistically significant relationship between decision-making power and the use of PNC at contact 1 in the present study, it should be noted that studies by BADO [4] and NIANG *et al.* [11] have shown the influence of women's decision-making power on the use of PNC by pregnant women.

6.6. Women's Knowledge of Prenatal Care

In the present study, the majority of women had a good knowledge of the signs of pregnancy, contrasting with their inadequate knowledge of their RDDs

(30.35%). According to RAYAISSE [12], 86.59% of women knew the signs of pregnancy in the Ouahigouya health district in Burkina Faso. Knowledge of the signs of pregnancy could facilitate early use of SPN services, as well as early detection and management of illnesses and complications.

In addition, around a quarter of the women surveyed were aware of the start date for SPN, the benefits of SPN and the diseases to be prevented during pregnancy. SIMPORE [13] found that 50% of women were aware of the onset of PNC, and of these, 17% had come for PNC at contact 1. On the other hand, DIARRA *et al*. [6] in Mali found that 65.6% of women did not know when prenatal visits should begin. In the present study, knowledge of the starting date of PNC was associated with attendance at contact 1 in the first trimester of pregnancy.

However, the current study showed that few women knew pregnancy-related complications, danger signs during pregnancy, and the recommended number of ANC contacts.

6.7. Determinants Related to Care Providers

Knowledge of ANC

The results of the present survey showed that the majority of providers had insufficient knowledge of the objectives and components of SPNs, the danger signs, and preventive treatment during pregnancy. These results are similar to those of BAKOUAN [9], who found that the level of knowledge among agents was unsatisfactory. This situation is not conducive to good communication with pregnant women to reinforce their knowledge of ANC [7].

Providers' attitudes and practices when offering antenatal care

Our study revealed that client reception was unsatisfactory, and BADO [4] came to the same conclusion. However, reception is a fundamental and decisive element in the care environment, as it enables clients to feel confident and to be well listened to and receive the advice and information provided by the provider [7] [8] [9]. This is what could make them want to return to the health facility, and thus encourage early use of SPN services.

Regarding provider practices during antenatal care, it was found that providers did not systematically collect the pregnant woman's concerns and WILD during the interview. These results are similar to those of IMA [14], who found that 53.14% of providers had not collected the pregnant woman's concerns, with 30.11% not asking for the WILD. This would suggest that ANC providers should improve their interviewing techniques.

Concerning the average performance of the gyneco-obstetrical examination during antenatal care, it was lower than the 64.65% according to GUEGUE [10]. This difference could be explained by the professional qualifications of our respondents, 55.55% of whom were midwives, compared with 100.00% in his study. This reflects a lack of gyneco-obstetrical examination practice on the part of providers. Such ANC would be ineffective in the detection, prevention and management of gynecological diseases.

About the organization of antenatal care services, the integration of activities was effective in the health facility, but SPNs performed only on weekdays from 7:30 am to 12:00 pm. The present results are similar to those of SIMPORE [13], who found a lack of permanence of ANC activities in the health facilities (FS). The integration of activities enables women to avoid multiple trips by benefiting from several services once at the health center. However, it should be coupled with permanent services for greater efficiency. The absence of permanent ANC services means that women cannot attend health services as and when they are available. This could result in missed appointments and delays to ANC contact 1.

Waiting time at ANC was considered long by just over half the women, as in the study by BAKOUAN [9]. In contrast, DRABO *et al*. [8] found that women were satisfied with the waiting time for ANC in their study carried out in the Do and Dafra health districts of Bobo Dioulasso. A long waiting time could be a source of demotivation for pregnant women and delay the use of ANC.

Providers did not regularly carry out activities to promote ANC (awareness-raising, social mobilization, home visits); this could compromise attendance at health services and therefore contribute to the late use of ANC.

Availability of free SPN products and inputs

In the present study, the health facility had all the other inputs for ANC except iron + folic acid, sulfadoxine-pyrimethamine (SP) tablets, and urine test strips, which were in short supply. It was found that the stock-outs were periodic, lasting less than a month, and during these periods prescriptions were offered and given to the women. These results are similar to those reported by BAKOUAN [9], who found shortages of iron and SP tablets in health facilities. These shortages lead to expenditure and disappointment [7] for women in terms of the unavailability of health products, and could be a reason for delaying ANC.

7. Conclusion

Our study revealed that pregnant women age 20 and over, knowledge of the date of their last menstrual period, and knowledge of the antenatal care calendar were associated with coming for antenatal care at contact 1 during the first trimester of pregnancy. Our results also showed an absence of permanent antenatal care services, inadequate reception of clients, and shortages of free products. These results suggest that efforts to improve antenatal care coverage should pay particular attention to informing/educating women, reorganizing PNC services, and improving antenatal care services.

8. Limitations

We were unable to explore the influence of certain factors such as the involvement of spouses and opinion leaders, and the working conditions of service providers. We believe that taking these factors into account could enrich the results of this research.

Author Contribution

All authors have read and approved this research.

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Conflicts of Interest

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

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