Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

# Factors in the late onset of the first prenatal consultation (ANC1) among pregnant women in Kenge, Kwango, DRC

Joël Kafumbi Katsiatsia[1]*, Malu Joseph Mayituka Newa[2], Trésormundele Lemba[3], Jean-Claude Tsangu Pondenu[4], Etjoliviekazundu Mvwala[5]

[1]Nurse, Teacher-Researcher, Institut Supérieur des Techniques Médicales Marie Reine de la Paix de Kenge (ISTM-MRP), Kenge, Kwango

[2]Assistant, Institut Supérieur des Techniques Médicales Marie Reine de la Paix de Kenge (ISTM-MRP), Kenge, Kwango

[3]General Practitioner, Kwango Provincial Health Division

[1]joelkafumbi@gmail.com



**Abstract—** This study investigated the factors associated with late recourse to the first prenatal consultation among pregnant women attending the Kenge General Referral Hospital. The aim was to identify the factors associated with late completion of ANC 1 in these patients. The study population consisted of 119 pregnant women who consulted for ANC at the Kenge General Referral Hospital between March 1 and June 1, 2020, from whom a sample of 57 subjects was selected. Following analysis of the data, it was observed that 48% of the women attended their first prenatal consultation late. Factors contributing to this delay included age, income level, parity, level of education, occupation, medical history, financial difficulties, lack of medical follow-up during pregnancy, neglect, illness, personal preferences and uncertainty about the pregnancy

**Keywords—** Factors, late-onset, prenatal consultation, ANC1, pregnant women

## Introduction

In many developing countries, improving maternal and child health is of paramount importance. One of the key elements in guaranteeing safe motherhood is to ensure medical follow-up during pregnancy through prenatal consultations (ANC). These consultations help to detect and prevent complications for both mother and child and to treat them appropriately. In addition, they offer healthcare professionals the opportunity to reach out to pregnant women and their families, raise awareness of the benefits of assisted childbirth, and encourage their loyalty to healthcare services.1 Complications related to pregnancy and childbirth are a persistent threat to the health

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

of women of childbearing age, positioning themselves as a major contributor to morbidity, disability, and mortality worldwide, of particular concern in developing countries. Maternal mortality varies significantly, from less than 10 per 100,000 live births (LBW) in industrialized countries to over 500 per 100,000 LBW in Africa. Appropriate monitoring during the gestational period could potentially prevent a considerable number of maternal deaths. Antenatal consultations (ANC) are of crucial importance in ensuring a healthy pregnancy for both mother and child. Indeed, the majority of pregnancy-related risk factors can be detected during ANC, which is all the more effective if initiated early and followed up regularly. The number of prenatal consultations currently varies between 8 and 13 in the USA and between 5 and 15 in Europe, while in Senegal, a minimum of 3 is recommended, i.e. one per trimester.2 In Morocco, prenatal consultations are organized by primary health care structures, birthing centers, hospital maternity units, and mobile teams. For all uncomplicated pregnancies, international standards recommend four antenatal visits. Nevertheless, these recommendations are often hampered in their implementation by various obstacles such as economic, social, and cultural constraints.1 In the Ivory Coast, communication strategies designed to raise awareness of the importance of antenatal services have not been met with the expected success within the country's health facilities. Due to delays or irregularities in antenatal care attendance, some women give birth without medical assistance, which can lead to serious complications that can sometimes be fatal. Relations within antenatal clinics are gradually deteriorating. Communication between health professionals and users takes place in a context marked by a lack of mutual trust and prejudice.3Various techniques and strategies have been put in place to reduce or even eliminate infant mortality worldwide, notably in Africa and more specifically in the Democratic Republic of Congo, as well as in the province of South Kivu. Among the measures adopted that are crucial to maternal and child health and family equilibrium are prenatal consultations. These consultations provide information not only on the state of health of the pregnant woman but also on that of the future child so eagerly awaited by the whole community. Despite the proven benefits of prenatal consultations, persistent obstacles linked to cultural barriers still hinder timely or full access to prenatal consultations for some pregnant women.4 According to research carried out in Mali on variables linked to the issue of prenatal consultation in the Health Districts of Kita and San, it was observed that 5.6% of clients did not benefit from any ANC, while 91.7%

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

of pregnant women had late recourse to ANC1. ANC faced several major challenges, including the high cost of services, family dissatisfaction, and a shortage of female health professionals. Multigestins and large multigestins, women uninformed about malaria prevention methods during pregnancy, and those with a single child under the age of 5 were more likely not to attend antenatal care. In addition, pregnant women who did not take part in Prevention of mother-to child transmission of HIV activities and those with more than two children were more likely to use ANC1 late.5 According to a previous study carried out in the Faratsiho district of Madagascar, various factors such as age, level of education, professional sector, spouse's level of education, geographical location, socio-economic level, type of housing, timing of antenatal consultations, assessment of perceived benefits, as well as lack of awareness and obstacles encountered during consultations, were identified as significantly influencing the frequency of antenatal consultations. Despite these efforts on the part of the health authorities and other stakeholders, coverage of antenatal care remains insufficient.6A study carried out in Lubumbashi revealed a high percentage (72.94%) of women in labor who had attended more than 3 antenatal care visits, but 53.11% of them started this process late. What's more, only 0.2% of parturients initiated their follow-up in the first trimester of pregnancy. Prenatal consultations do not fully comply with World Health Organization guidelines for pregnant women, due to unsatisfactoryorganization.7Women's satisfaction with prenatal care was studied. Surveys revealed that 14% of respondents were dissatisfied with the interaction with their healthcare provider and the intimacy of the consultation. Waiting time was considered problematic by 30% of women. Women aged 45 were more likely to be dissatisfied with the quality of prenatal care services than younger women. Similarly, women surveyed were more likely to express dissatisfaction with the inadequate level of quality of antenatal care services provided by public health facilities compared to private health facilities. Dissatisfaction with long waiting times for consultation was more widespread among women living in urban areas (34%) than in rural areas (28%). However, they were still not satisfied with this level of delay. This suggests that, statistically speaking, the quality of interaction with the provider and the intimacy of this consultation also seem to be a factor explaining women's dissatisfaction. Women's dissatisfaction with prenatal care was more prevalent in health centers than in hospitals and clinics. According to the recent study, the perception of quality of care varied according to the type of health facility

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

chosen. The shortcomings observed within public health structures and health centers require particular attention from government authorities and health organizations, given that these establishments remain the main providers of care for the population in general, and disadvantaged women in particular.8 In a study carried out in Burundi, Yapi et al. demonstrated that factors such as place of residence, level of education, number of previous deliveries, HIV infection during pregnancy and frequent use of the Internet had a significant influence on the use of antenatal consultations by women who had given birth. It is imperative to take these determinants into account when developing strategies to improve access to antenatal care.9In a study investigating the determinants of gestational age at first antenatal consultation in Douala (Cameroon), multivariate analysis revealed that factors such as maternal age under 18 and primary or secondary education were associated with delay in first antenatal consultation. Other factors contributing to this delay included no history of abortion, limited monthly income, lack of knowledge of the last menstrual period, and lack of awareness of the importance of prenatal follow-up.10 In the Dibindi Health Zone in the Democratic Republic of Congo, despite average attendance at prenatal consultation services by pregnant women, their use remained insufficient. There were structural shortcomings in the main health centers, compromising the effectiveness of prenatal consultations.11

Data from the SNIS (National Health Information System) report for the Kenge Health Zone in 2017 reveal that a modest 35% of the 10,622 womens who benefited from a first prenatal consultation started the latter during the first trimester of their pregnancy (SNIS annual ZS Kenge, 2017). Despite a significant density of medical infrastructure in the city of Kenge, thus reducing travel distances, and despite free prenatal services, the late start of prenatal consultations remains a reality for many pregnant women. The main objective of this study was to identify the factors hindering early access to the first antenatal consultation among patients attending the Kenge General Referral Hospital (GRH), through the following specific objectives: (i) to assess the proportion of women having delayed their recourse to ANC 1; (ii) to determine the main factors influencing this delay in access to ANC 1 services for pregnant women attending the Kenge GRH.

Materials and methods

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

## A. Description of the study environment

Our research targets all pregnant women who attended antenatal consultations at the Kenge General Reference Hospital (HGR). The Kenge GRH is located on Avenue Dispensary 1, in the town of Kenge, seat of Kwango Province, in the Kenge Rural Health Zone, Kwango Province, Democratic Republic of Congo (DRC). It is located 275 km from Kinshasa, on Route Nationale N°1 between Kinshasa and Kikwit. The Kenge HGR offers a range of complementary activities as a General Reference Hospital. It coordinates curative, preventive, and promotional activities. Its administrative structure comprises a Management Committee and a Hospital Board of Directors. The management of this hospital has been entrusted by the Congolese State to the ASBL Diocèse de Kenge. On the technical front, the Kenge HGR operates with a team of 92 members, including 6 doctors, two administrator-managers, 3 nutritionists, 3 laboratory technicians, and 3 microscopists; 49 nurses, including a Director of Nursing; 4 midwives, 7 ordinary workers, and 9 administrative staff. This medical corps provides preventive and curative care aimed at significantly improving the health conditions of inpatients and outpatients. The hospital has a capacity of 135 beds.

## B. Sampling method and data collection technique

The population targeted by the present study comprises all pregnant women who attended the Prenatal Consultation (ANC) at the Kenge General Referral Hospital (HGR), during the period from March 1 to June 1, 2020, for a total of 119 individuals. The sample chosen for this study is probabilistic, simple random, and exhaustive. It includes 57 pregnant women who started their first prenatal consultation after 14 weeks. The required data were collected in the gynecology-obstetrics department. Various documents, such as the ANC register, the antenatal follow-up form, the pregnant women's consultation forms, and others, were used to extract the elements required for the study (literature review).

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

## C. Selection criteria

Inclusion criteria To participate in the study: (i) To be a pregnant woman; (ii) To have undergone ANC at Kenge RGH during the study period; (iii) To have started ANC after 14 weeks' gestation and (iv) To be present on the day of the survey.

## Exclusion criteria

Any pregnant woman physically or morally unable to answer the questions; any pregnant woman unable to speak any of the languages spoken by the interviewer; any woman unavailable at the time of the survey.

## D. Data analysis techniques

The data collected were entered using Microsoft Word and Excel 2013 software for information analysis. The data collected were classified in tables that were used for comments and discussions, based on which conclusions were drawn. The analyses were essentially descriptive, based on the calculation of frequencies and proportions using the following equation:

$$f = \frac{Fo}{FA} * 100$$

Where,

f = Relative frequency

FO = Observed frequency

FA = Expected frequency

## Results

## A. Frequency of ANC attendance

This table shows that of the 119 pregnant women who attended ANC, 62 women (52%) started ANC before 14 weeks of amenorrhea, and 57 women (48%) started ANC late, i.e. after 14 weeks of amenorrhea, which is the focus of our sample. The frequency of late start of ANC is therefore 48% (Table 1).

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

**Table 1:** Frequency of ANC attendance

| ANC 1 | Freq. | % |
|---|---|---|
| ≤ 14 weeks of amenhorrhoea | 62 | 52 |
| ≥ 14 weeks of amenhorrhoea | 57 | 48 |
| Total | 119 | 100 |

Source: Author, (2020)

## B. Respondent characteristics

In terms of age, the 12-17 and 24-29 age groups are in first place, with 26.32% each. In second place is the 30-35 age group with 22.81%. The 18-23 age group comes third with 17.54%. The 36-41 age group comes next to last with 5.26% and finally the 42-47 age group with 1.75% (table 2).

**Table 2:** Age of respondents

| Age | Freq. | % |
|---|---|---|
| 12-17years | 15 | 26,32 |
| 18-23years | 10 | 17,54 |
| 24-29years | 15 | 26,32 |
| 30-35years | 13 | 22,81 |
| 36-41years | 3 | 5,26 |
| 42-47years | 1 | 1,75 |
| Total | 57 | 100,00 |

Source: Author, (2020)

The breakdown by marital status shows that the vast majority of respondents are married (92.98%), followed by single and common-law (3.51% each). (Table 3).

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

**Table 3:** Breakdown of respondents by marital status

| Marital status | Freq. | % |
|---|---|---|
| Single | 2 | 3,51 |
| Married | 53 | 92,98 |
| Divorced | 0 | 0,00 |
| Widow | 0 | 0,00 |
| Common-law | 2 | 3,51 |
| Total | 57 | 100 |

Source: Author, (2020)

The breakdown by level of education showed that 35.09% had primary education, 24.56% had secondary education, 22.81% had a university education and 17.54% had no education (Table 4).

**Table 4:** Respondents' level of education

| Level of education | Freq. | % |
|---|---|---|
| No education | 10 | 17,54 |
| Primary | 20 | 35,09 |
| Secondary | 14 | 24,56 |
| University | 13 | 22,81 |
| Total | 57 | 100 |

Source: Author, (2020)

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

In terms of women's occupations, 66.67% were housewives; 14.04% were salaried employees in the public or private sector; 10.53% worked in agriculture and fishing, and 8.77% were self-employed (Table 5).

**Table 5:** Occupation of respondents

| Occupation | Freq. | % |
|---|---|---|
| Housewives | 38 | 66,67 |
| Salaried in the public/private sector | 8 | 14,04 |
| Self-employed | 5 | 8,77 |
| Agriculture and fishing Sector | 6 | 10,53 |
| Total | 57 | 100 |

Source: Author, (2020)

The results show that 47.37% of respondents came from 3-4 member households. Smaller households (1 2 members) and larger households (more than 5 members) were represented by 26.32% each (table 6).

**Table 6:** Household size

| Household size | Freq. | % |
|---|---|---|
| Smaller (1-3) | 15 | 26,32 |
| Average(4-6) | 27 | 47,37 |
| Larger (sup. à 7) | 15 | 26,32 |
| Total | 57 | 100,00 |

Source: Author, (2020)

The breakdown by number of pregnancies shows that 66.67% of pregnant women are multigravida and 33.33% are primigravida (Table 7).

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

**Table 7:** Breakdown by number of pregnancies

| Gestité | Freq. | % |
|---|---|---|
| Primigravida | 19 | 33,33 |
| | | |
| Multigravida | 38 | 66,67 |
| Total | 57 | 100,00 |

Source: Author, (2020)

The results presented in this table show that 52.63% were multiparous, 33.33% nulliparous and 14.04% primiparous (Table 8).

**Table 8:** Breakdown of pregnant women by parity

| Parité | Freq. | % |
|---|---|---|
| Nulliparous | 19 | 33,33 |
| Primiparous | 8 | 14,04 |
| Multiparous | 30 | 52,63 |
| Total | 57 | 100 |

Source: Author, (2020)

Among the factors contributing to the late onset of ANC1, neglect came first with 21.05%, while 15.79% cited professional occupations. Financial difficulties and personal convenience caused a delay for 14.04% each. Uncertainty about the pregnancy caused a delay for 12.28%, while illness and the absence of pregnancy-related complications caused a delay for 3.51% each (Table 9).

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

**Table 9:** Factors favouring late attendance at ANC1

| Factors | Freq. | % |
|---|---|---|
| Financial difficulties | 8 | 14,04 |
| Absence of pregnancy-related complications | 2 | 3,51 |
| Illness | 2 | 3,51 |
| Personal convenience | 8 | 14,04 |
| Uncertainty about the pregnancy | 7 | 12,28 |
| Professional occupations | 9 | 15,79 |
| Neglect | 12 | 21,05 |
| Incertitude de l'âge de la grossesse | 9 | 15,79 |
| Total | 57 | 100 |

Source: Author, (2020)

## Discussion of results

## A. Frequency of ANC attendance

The results of the study conducted by Ndiayeet al.2 revealed a proportion of 68% of women participating late in NPC1, a figure higher than our estimate of 48%. In Senegal, on the other hand, late attendance at ANC1 was reported at just 3%, a clear disparity with our results.12 In Lubumbashi (DRC), research revealed a percentage of 53.11% for late onset of the first antenatal consultation.7 In Douala, Cameroon, 62% of first prenatal consultations (ANC1) were late.10 In Mali, on the other hand, the highest rate of late participation in ANC1 was observed at 91%.5

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

## B. Respondent characteristics

At least 70% of respondents were young, aged under 30. Various studies have shown that women under 18 and over 34 tend to start their prenatal care late.10,13,14 A very large majority of those surveyed, 92.98%, were married, a figure slightly lower than the results reported by Ndiayeetal.2, who observed a marriage rate of around 96%. However, various studies conducted worldwide have shown that it is single or cohabiting women who make less use of prenatal services due to social barriers. Niang et al.15 point out that the stigmatization suffered by these single women also stems from social norms relating to motherhood, which exclude certain categories of women, particularly those not living with a partner. Single women are reluctant to benefit from prenatal care until the future father has acknowledged paternity of the child, for fear of being judged or questioned by health professionals about the father's identity.

Slightly more than half of those questioned had a low level of education (primary school) or were even illiterate. Several studies indicate that illiterate or poorly educated women tend to delay the start of prenatal care due to a lack of information.2,13 More than half of the respondents (66.67%) were multigestational, and just over half (52.63%) were multiparous. Various studies have established a correlation between multigestation, multiparity, and delayed access to prenatal care. This research underlines a sense of responsibility among women towards the health system that promotes family planning 2, as well as the acquisition of experience of pregnancy for some women who feel that there is nothing new at antenatal consultations other than an established routine.5,9,14,16

Although pregnant women are aware of the right time to start antenatal care, early initiation has been influenced by a variety of other factors17. Our results confirm several studies carried out in Africa demonstrating that several factors contribute to delayed access to prenatal care, includingneglect, professional constraints15, financial difficulties12, uncertainty linked to pregnancy2, as well as the absence of complications during this period.10,14,16

# Conclusions and recommendations

## A. Conclusion

Late recourse to prenatal consultation services 1 is a reality among pregnant women in Kenge. Despite the introduction of multiple funding modalities to mitigate financial risk and ensure

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

equitable access for all, socio-cultural barriers and certain personal characteristics of women remain a persistent obstacle resulting in delayed use of ANC1.

## B. Recommendations

Because of the above, it is recommended that health professionals: (1) step up awareness-raising sessions on the importance of starting ANC1 at the right time; (2) inform women of the risks involved in starting ANC1 late; (3) avoid all forms of discrimination against pregnant women during prenatal consultations. Pregnant women are advised to be aware and systematically initiate ANC at the right time.

## References

**[1]** Sebbani, M., Adarmouch, L., Amine, M. & Cherkaoui, M. Mobilisation communautaire pour l'amélioration de la surveillance de la grossesse en milieu rural au Maroc. Pan Afr. Med. J.35, 73 (2020).

**[2]** Ndiaye 1, P., Tal Dia 2, A., Diediou 3, A., Dieye 4, E. H. L. & Dione 5, D. A. Déterminants socioculturels du retard de la 1 re consultation prénatale dans un district sanitaire au Sénégal. Santé Publique 531–538 (2005).

**[3]** Tuo, A. Communication Et Relation De Soin En Consultations Prénatales Dans Les Formations Sanitaires Urbaines De Bouaké. (Université Alassane Ouattara (Bouaké), 2021).

**[4]** Bagalwa, B. F. Impacts des Consultations Prenatales sur la Sante de la Mere, de l'Enfant et sur la Stabilite Familiale a Kadutu. Int. J. Soc. Sci. Sci. Stud.2, 535–560 (2022).

**[5]** Kayentao, A. K. et al.Factors associated with antenatal care's challenges in Kita and San health districts (Mali). Health Sci. Dis.23, (2022).

**[6]** Rafamatanantsoa, J. F. et al. Facteurs associés au nombre des consultations prénatales dans le district de Faratsiho, Madagascar. Rev. Afr. Médecine Santé Publique7, 272–284 (2024).

**[7]** Vicky, M. A. K., Lubamba, C., Richard, M., Kabamba, A. & Albert, M. T. A. Évaluation de la qualité des Consultations Prénatales dans 4 Formations Sanitaires de Lubumbashi. Rev. Afr. Médecine Santé Publique7, 205–2010 (2024).

**[8]** Ntwali, M. P. Évaluation de la Satisfaction des Femmes ayant reçu une Consultation Prénatale dans Les Formations Sanitaires en République Démocratique du Congo. Eur. Sci. J. ESJ18, 31–31 (2022).

Received: 2024-03-04
Accepted: 2024-06-15
Published Online: 2024-06-30
DOI: 10.70454/IJMRE.2024.40202

International Journal of Multidisciplinary Research and Explorer (IJMRE)
E-ISSN: 2833-7298, P-ISSN: 2833-7301

**[9]** Yapi, A. Et Al. Predicteurs Du Recours Aux Soins Prenataux Chez Les Femmes Ayant Accouchees Au Burundi : Une Analyse Multiniveau. (2022).

**[10]** Nguefack, C. T. Facteurs Determinants De L'age Gestationnel A La Premiere Consultation Prenatale A Douala (Cameroun). J. Sago Gynécologie – Obstétrique Santé Reprod.19, (2018).

**[11]** Mukendi Jr, M. Facteurs Associes A L'utilisation De Service De La Consultation Prenatale (Cas De La Zone De Sante De Dibindi). Rev. Médicale Gd. Lacs9, (2018).

**[12]** Ndir, B. Utilisation des services de consultation prénatale à Dakar. (2002).

**[13]** Fagbamigbe, A. F., Olaseinde, O. & Fagbamigbe, O. S. Timing of first antenatal care contact, its associated factors and state-level analysis in Nigeria: a cross-sectional assessment of compliance with the WHO guidelines. BMJ Open11, e047835 (2021).

**[14]** Kourouma, M., El hadj Oussedou Faye, C. N. & Karim, A. Contribution à l'amélioration de la qualité de la consultation prénatale: le cas d'un centre de santé rural, Thiadiaye, département de M'Bour région de Thiès,(Sénégal). Mém. Pour Obtention Diplôme 3eme Cycle Gest. Programme Santé (2008).

**[15]** Niang 1, M., Dupéré 2, S. & Bédard 3, E. Le non-recours aux soins prénatals au Burkina Faso. Santé Publique27, 405–414 (2015).

**[16]** Kotoh, A. M. & Boah, M. "No visible signs of pregnancy, no sickness, no antenatal care": Initiation of antenatal care in a rural district in Northern Ghana. BMC Public Health19, 1094 (2019).

**[17]** Maharaj, R. & Mohammad nezhad, M. Perception of pregnant women towards early antenatal visit in Fiji: a qualitative study. BMC Pregnancy Childbirth22, 111 (2022).