Scientific Research Publishing

Open Journal of Obstetrics and Gynecology, 2023, 13, 1111-1126
https://www.scirp.org/journal/ojog
ISSN Online: 2160-8806
ISSN Print: 2160-8792

Oral Health Patterns among Pregnant Women Attending Antenatal Clinic in Bamenda

William Ako Takang[1*], Akwa Divine Mbong[2]

[1]Faculty of Health Sciences, University of Bamenda, Bamenda, Cameroon
[2]Department of Public Health, Faculty of Health Sciences, University of Bamenda, Bamenda, Cameroon
Email: *wtakang@gmail.com

How to cite this paper: Takang, W.A. and Mbong, A.D. (2023) Oral Health Patterns among Pregnant Women Attending Antenatal Clinic in Bamenda. *Open Journal of Obstetrics and Gynecology*, **13**, 1111-1126.
https://doi.org/10.4236/ojog.2023.136095

Received: May 23, 2023
Accepted: June 27, 2023
Published: June 30, 2023

Abstract

Introduction: Pregnancy can be a risk factor for dental diseases as oral tissues are liable to changes due to hormonal variations. High levels of secretion of progesterone predispose gums tissues to inflammation leading to gingivitis. Also, oral pathologies in pregnant women can adversely affect pregnancy outcomes. This may be because pro-inflammatory cytokines are released into the system of the pregnant woman, which can reach the womb, causing harm to the baby. Pathogenic bacteria can also get into circulation leading to septicemia. This can cause abortion, preterm delivery, low birth weight, pre-eclampsia and many others. There is a high prevalence of oral diseases in pregnant women in developing countries, but just a few of them actually access dental care services. This is more rampant in countries with no oral health programs and where oral health is not included in the antenatal care package. Lack of knowledge about the importance of oral health to pregnancy outcome, cost of dental treatment, as well as fear of the effect of dental treatment on pregnancy, are among the barriers to pregnant women not accessing dental care services during pregnancy. **Objective:** The main objective of the study was to assess the oral health status among pregnant women attending antenatal clinics in Bamenda. **Methods:** A cross-sectional community-based study was carried out on 295 pregnant women attending ANC in Nkwen, Mankon, and Bamendankwen, which have specialized dental units and so all these pregnant women visited the units at least once during their ANC visits. A specially designed questionnaire was used to assess the demographic variables and oral hygiene practices. A clinical examination was done by dentists in charge of the dental units according to WHO criteria 1997 and recorded using WHO Oral Health Assessment Form. Oral Hygiene Index-Simplified (OHI-S), Periodontal Index (PI), dental caries, access to dental care, and barriers to dental care were evaluated using questionnaires and clinical examinations. Data collected were analyzed using the SPSS v25.0 software package. Descriptive statistics such as mean, standard deviation, and proportion were used. **Results:**

The mean age of the pregnant women in the study was 21.8 (2.12) years. The prevalence of carriers and periodontal diseases was 73.2% and 85.4%, which proves that the issue raised is a major concern. Two hundred and sixty-eight (90.8%) pregnant women in this study had at least an oral health problem. This gives us a global prevalence of 90.8% of oral diseases. In this study, access to dental services by pregnant women in Bamenda was only 10.8%, and was a reflection of the participation rate of the pregnant women that made use of the service either as a routine or once in the course of their ANC visits. The main barriers to oral health services included: the high cost of dental treatment, 34.2% lacked knowledge about the importance and availability of dental services, and 11.2% feared the effect of dental treatment on pregnancy outcome. **Conclusion:** The present study demonstrates a high prevalence of oral diseases, very low access to dental services and high dental cost as the main barrier to dental services.

Keywords

Pregnant Women, Dental Caries, Periodontal Diseases

1. Introduction

1.1. Background

Oral health is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort, and disease of the craniofacial complex that is head, face, and oral cavity [1].

It is estimated that oral diseases affect 3.5 billion people worldwide and untreated dental caries of permanent teeth was one of the most prevalent diseases globally in 2017. Poor oral health causes severe pain and discomfort. This can lead to disfigurement, social isolation, and even death [2].

Oral diseases are among the most common Non-Communicable Diseases (NCDs) in the world and may affect children, the young, and the elderly [2]. Most oral diseases and conditions share modifiable risk factors (such as tobacco use, alcohol consumption, and unhealthy diets high in free sugars) common to the four leading Non-Communicable Diseases (NCDs, namely cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes). Additionally, it is reported that poor oral health has been linked reciprocally with other non-communicable diseases, such as diabetes.

Periodontal or gum disease and dental caries are the most oral health problems in the world. About 90% of the world's population is affected by oral diseases [3].

Many studies show a higher prevalence of oral diseases in pregnant women than in non-pregnant women [4]. According to a study carried out in the USA, approximately 60% to 75% of pregnant women were found to have gingivitis [5].

In Africa, oral diseases are increasingly being recognized as a major public health problem in light of the rising NCD burden as well as its common modifiable risk factors.

According to the WHO African Region 2017 report, approximately 400 million people are infected by some form of oral disease. In Africa, a prevalence of 60% to 90% is reported in some studies [6].

There is a low dentist to patients' ratio in Africa. According to the Cameroon National Dental Council, about 800 dental surgeons cater to over 25 million Cameroonians. This gives a rough estimate of 1 dentist per 32,000 populations. The oral disease burden is further worsened by no budget being dedicated to oral health. Therefore, people incur significant out-of-pocket expenses to access oral health services. Because of the low socioeconomic situation of most Africans, many oral diseases remain untreated.

Pregnancy is a risk factor for dental diseases. This is so because oral tissues are susceptible to hormonal variations and reduction of the immune system of pregnant women. In a woman's life, major physiological and hormonal changes occur during pregnancy.

There is an increased secretion of progesterone. Progesterone encourages the production of prostaglandins, substances that cause blood vessel inflammation in gum tissues. This exposes gum tissues to gingivitis, which is an inflammation of the gum tissues. This situation is further worsened by poor oral hygiene during pregnancy.

To add to this, there is a reduction of immunity during pregnancy. This encourages pathogenic oral bacteria to multiply exponentially, leading to oral infections.

Increased vomiting during pregnancy exposes the teeth to dental caries. The vomit contains low-pH hydrochloric acid, which dissolves the enamel of the tooth. This renders the teeth' enamel weak thereby leading to cavitation.

The eating habit of pregnant women also makes them susceptible to dental caries. Most of them crave carbohydrates and sugary food. These cariogenic sugars are converted to lactic acid by bacteria. This dissolves the teeth enamel causing cavities on them.

Oral health plays an important role in the outcome of pregnancy. However, many pregnant women and health care providers are either unaware of this fact or give less attention to the oral health of pregnant women. Oral health is crucial for the overall health of a pregnant woman and may adversely affect the outcome of her pregnancy [7].

Several oral pathologies like periodontitis, gingivitis, pyogenic granuloma, and dental caries have been demonstrated to be associated with poor pregnancy outcomes. Adverse pregnancy outcomes such as miscarriages, pre-term delivery, low birth weight, pre-eclampsia, gestational diabetes, and others can occur with pregnant women having oral health problems [8] [9].

Despite the importance of oral health to pregnancy outcomes, there is a neg-

lect of oral and dental health either by health care systems, health care providers, and the pregnant women themselves.

In Cameroon and many African countries, neither health professionals nor pregnant women understand that oral health care is an important component of a healthy pregnancy. To make things worse, there are no oral health programs in Cameroon.

1.2. Statement of the Problem

Pregnancy is characterized by complex physiological, hormonal, biochemical, and behavioral changes, which may be detrimental to the oral and general health of the pregnant woman and her baby. There is an increased secretion of progesterone, which affects the blood vessels of the gums. Poor oral hygiene and hormonal variations lead to inflammation of the gums and mobility of the teeth.

Some of the antenatal care packages and practices in middle and low-income countries do not provide oral health care services. In some regions where the service is available, many of the pregnant women are unaware of it. Other studies have also demonstrated poor use of dental care services among pregnant women receiving prenatal care services. More so, oral and dental health screening is not routinely discussed during perinatal care visits, and many pregnant women with obvious signs of oral disease do not seek or receive oral health care [1]. In Cameroon, Kashetty *et al.* found a prevalence of 74.4% and 97.3% for periodontal diseases and dental caries for pregnant women in Yaoundé [7].

Description of the epidemiological situation is the cornerstone of the successful preparation and implementation of a preventive program. It is important to know the oral health status of pregnant women to recommend effective preventive measures.

We, therefore, decided to carry out this study to appreciate the magnitude and importance of the problem in our context. We evaluated the oral health status of pregnant women attending ANC in Bamenda.

2. Materials and Methods

2.1. Study Design

A community and hospital-based descriptive cross-sectional study was conducted to assess oral health patterns among pregnant women attending antenatal clinics in Bamenda.

2.2. Study Population

The population that constituted our study was made up of pregnant women in Bamenda.

2.3. Study Site

The study was carried out in the three communities that make up Bamenda. That is, Mankon, Nkwen and Bamendankwe. This included the two health dis-

tricts in Bamenda. Clinical exams were done at the dental units of St. Blaise Hospital and the District Hospital Nkwen.

2.4. Study Duration

The research was carried out from May to July 2022.

2.5. Sampling Procedure

The sampling of the participants was done using the convenience sampling method, and a sample size of 292 participants was considered adequate, given a 95% confidence interval. A prevalence of 74.4% for periodontal disease in pregnant women obtained by Kashetty *et al.* in a study in Yaoundé was used for our calculation [7]. The minimum sample size was computed using the formula

$$n = z^2 pq/m^2$$

where n = number of subjects required;

z = confidence level at 95% (1.96);

p = prevalence of periodontal disease (74.4%);

$q = 1 - p = 1 - 0.744 = 0.256$;

m = margin of error at 5% (0.05) hence $n = 1.96^2 \times 0.744 \times 0.256/0.05^2 = 292.67$ subjects. This was rounded up to 300 as our sample size.

2.6. Inclusion/Exclusion Criteria

2.6.1. Inclusion Criteria

Included in this study were:

Women of childbearing age, who were pregnant, were willing to participate in the research by signing the informed consent.

2.6.2. Exclusion Criteria

Excluded from this study, were pregnant women as well as non-pregnant women at the reproductive age:

- With psychological illness;
- Who were smokers;
- Who recently took medications that could affect their oral health;
- Who refused to take part in the study.

2.7. Research Procedure

Pregnant women who were residing in Mankon, Nkwen, and Bamenda-Nkwe were approached at the neighborhood of health facilities where they were attending ANC. The aim of the study was explained to them. Participation was voluntary, and participants could opt out of the study at any point.

Those who agreed to participate were included in the study after signing a written informed consent form.

Subjects who accepted to participate were interviewed about their medical history and those who were suffering from any mental or physical disease that could

affect oral health were excluded.

Data Collection

The data collection form was coded to avoid the identification of participants by third parties.

The research was composed of two main stages: Firstly, a face-to-face interview with a questionnaire and secondly a clinical examination at the dental units of the Nkwen District Hospital and St. Blaise Catholic Hospital Big Mankon.

1) Administered questionnaire

The questionnaire had 5 parts:

a) **Socio-demographic data**: This included age, educational level, occupation, marital status, and age of current pregnancy;

b) **Perceived oral health**: The current and last dental pain, gum problem);

c) **Oral health practice** (tooth-brushing, other oral hygiene methods, dental visits before and during pregnancy, barriers to dental visits);

d) **Attitude** before and during pregnancy (dental care behavior during pregnancy, behavior towards dental pain during pregnancy);

e) **Knowledge** about the cause of tooth decay, and gum disease and how they can be prevented, and the source of knowledge.

The survey questionnaire was structured and it contained items relating to oral health and care (including the prevalence of dental problems), frequency of dental visits, barriers to seeking dental care, oral hygiene habits, perceptions of oral health, and knowledge about oral health and access to dental care.

Many of the items used were selected from the World Health Organization oral health surveys guide [2].

2) Clinical Examination

The second part of the research was the clinical examination, which was performed in collaboration with data provided by the dentists at the health facilities under consideration. This was performed at the dental units of St. Blaise Catholic Hospital and the Nkwen District Hospital. These clinical exams were mostly oriented to oral examination to determine the oral health status of pregnant women. A full mouth examination was done for all the pregnant women who finished the interview using the Community Periodontal Index (CPI), and the Decayed, Missed, and Filled Teeth (DMFT) index according to World Health Organization (WHO) criteria.

Clinical examination was carried out by using a dental mirror, a periodontal probe, and a probe. The mirror was used to examine the oral mucosa, gums, and teeth. Any gum pathology was diagnosed and recorded. Cavities on teeth were determined by using a dental explorer and a dental mirror, missing teeth, decay teeth, and filled teeth were recorded.

A periodontal probe was used to measure the depts of periodontal pockets and pregnant women with periodontal diseases were identified and recorded.

Oral Hygiene Index

Oral Hygiene Index-Simplified (OHI-S) developed by Greene and Vermilion-

will was used to access the oral hygiene of pregnant women [8]. The 6 surfaces examined are 4 posterior teeth and 2 anterior teeth. That is teeth number 16, 11, 26, 36, 31, and 46. This involves the debris index and calculus index.

The debris index which ranges from 0 to 3 on OHI-S was assessed and graded. The dental explorer was placed on the incisal third and moved towards the gingival third.

Scores were graded as follows:

a) 0 = no debris;

b) 1 = debris covering not more than a third of the tooth;

c) 2 = debris covering more than a third but not more than two-thirds of the tooth; and

d) 3 = debris covering more than two-thirds of the tooth.

Debris Index (DI) = Sum of the debris score per tooth surface/Number of surfaces examined

Good: 0 to 0.6;

Fair: 0.7 to 1.8;

Poor: 1.9 to 3.0.

The calculus index which ranges from 0 to 3 on OHI-S was assessed and graded. The assessment was done by gently placing a dental explorer into the distal crevice and drawing it subgingivally from the distal contact area to the mesial contact area (Figure 1). Scores were graded as follows:

a) 0 = no calculus present;

b) 1 = supra-gingival calculus covering not more than a third of the tooth;

c) 2 = supra-gingival calculus covering more than a third but not more than two-thirds of the tooth or presence of flecks of sub-gingival calculus;

d) 3 = supra-gingival calculus covering more than two-thirds of the tooth or a continuous heavy band of sub-gingival calculus.

Calculus Index (CI) = Sum of calculus score per tooth surface/Number of surfaces examined

Good: 0 to 0.6;

Fair: 0.7 to 1.8;

Poor: 1.9 to 3.0.

Oral Hygiene Index-Simplify (OHI-S) = DI + CI. This ranges from 0 to 6

The higher the OHI-S, the poorer the oral hygiene of the patient.

Good OHI-S ranges from 0 to 1.2;

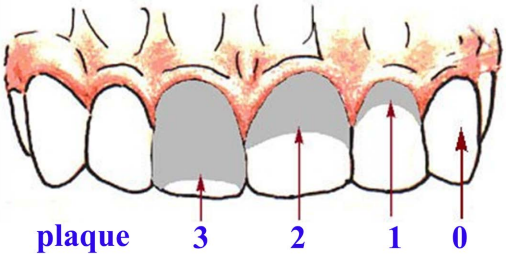

Figure 1. Calculus index.

Fair OHI-S from 1.3 to 3.0; and

Poor OHI-S from 3.1 to 6.0.

Periodontal Index (PI)

The PI assesses periodontal diseases; that is the presence of bleeding, calculus, and periodontal pockets. This will be assessed using the WHO-recommended Community Periodontal Index CPI.

Based on the CPI, periodontal diseases are coded as

0 = Healthy;

1 = Bleeding observed, directly or by using a mouth mirror, after probing;

2 = Calculus detected during probing, but pocket 3 mm or under; and

3 = Pocket 4 - 5 mm.

2.8. Data Analysis

SPSS software version 25 was used for statistical analysis. Descriptive statistics were used for frequency and proportions.

2.9. Ethical Consideration

Ethical clearance for the research protocol was obtained from the Ethical Review Committee/Institutional Review Board of the University of Bamenda.

Authorization was obtained from the Regional Delegation of Public Health. An approval letter was equally obtained from the District Medical Officer, and from the directors of the hospitals, we performed the clinical exams.

The aim of the study was explained to the participants after which an information notice was given to them. Participants who accepted to be part of the study were asked to sign a consent form.

Free oral scaling was done as an incentive to encourage participation in the study. Participation was voluntary, and participants could opt out of the study at any point.

The data collection form was coded to avoid the identification of participants by third parties.

All information obtained was used for the research purpose.

3. Results

3.1. Socio-Demographic and Obstetric Background

A total of three hundred and eighty-six participants were enrolled, but two hundred and ninety-five questionnaires were completed.

The response rate was 76.4%. Eighty-three pregnant women declined to participate and 8 pregnant women were ineligible according to our exclusion criteria. Table 1 shows the socio-demographic characteristics of the 295 pregnant women.

The age range of the participants was 17 - 43 years and a mean age of 24.92 years with a Standard Deviation (SD) of 5.6 years. The median and mode were 24 years. A majority of the 295 participants attended higher education. 41 and

Table 1. Socio-demographic and obstetric characteristics.

Variable	Frequency (N)	Proportion (%)
Age (years)		
20 and below	51	17.3
21 - 30	**211**	**71.5**
31 - 40	30	10.2
41 and above	3	1
Level of education		
Quranic/primary	34	11.1
Secondary	78	25.5
High school	73	23.9
Tertiary	**110**	**35.9**
Marital status		
Married	97	32.9
Single	**190**	**64.4**
Divorced	5	1.7
Widow	3	1
Age of pregnancy		
First trimester	28	9.5
Second trimester	**177**	**60**
Third trimester	90	30.5

above was included (even though it is out of the reproductive of women) because we had some exceptional cases of such in our sample.

One hundred and ninety were single, 97 (32.9%) were married, 5 were divorced (1.7%), and 3 (1%) were widows.

Considering the gestational age, 28 (9.5%) were in the first trimester, 177 (60%) in the second, and 90 (30.5%) in the third trimester.

3.2. Perceived Oral Health and Practice

For oral health perception, 263 (89.2%) of pregnant women never had a dental checkup. Seventy-two (24.4%) of the respondents had dental pains when the study was being carried out as can be seen in Table 2 below.

At the time of the interview, 201 reported having at least a dental problem given a self-reported prevalence of 68.1% of oral health problems.

The dental complaints elicited included swollen and bleeding gums (35.9%), tooth decay (32.2%), and both dental caries and bleeding gums (24.7%).

A large proportion of the subjects 175 (59.3%) reported that they brushed their teeth once a day, while 113 (38.3%) brushed twice a day, and only 7 (2.4%) brushed more than twice a day.

Table 2. Perceived oral health and practice.

Variables	Frequency (N)	Proportion (%)
pain in the mouth		
Yes	72	24.4
No	223	75.6
Ever had a dental check		
Yes	32	10.8
Never	263	89.2
Self-report dental problems		
Dental caries	95	32.2
Swollen/bleedinggums	106	35.9
Dental caries and bleedinggums	73	24.7
Mode of cleaning		
Toothbrush and toothpaste	275	93.2
Chewing stick	7	2.4
Others	13	4.4
Frequency of teeth brushing (/day)		
Once or less	175	59.3
Twice	113	38.3
More thantwice	7	2.4

A majority of 263 (89.2%) pregnant women reported that they had never visited a dentist.

Only 32 (10.8%) pregnant women had visited a dentist. Their main reason for the visit was dental pains 27 (84%).

Evaluation of oral health practices among pregnant women showed that 40.7% had good oral health practices while a majority of the pregnant women 59.3% had poor oral health practices.

3.3. Barriers to Oral Health Care Services

Figure 2 below shows the reasons for not visiting dental services. 162 did not do so because of cost, 100 did not know the importance of dental services to their pregnancy, and 33 said that they and their baby might be harmed by dental treatment.

3.4. Oral Health Knowledge Based on Findings

Concerning oral health knowledge among pregnant women, 42.4% had average knowledge, 25.4% had good knowledge and 32.2% had poor knowledge.

Over 49% of the women agreed that tooth brushing prevents tooth decay, gum diseases, and a bad smell. The majority of the women 51% thought that brushing is just a habit. Most of the women (69.5%) believed that the main cause of tooth

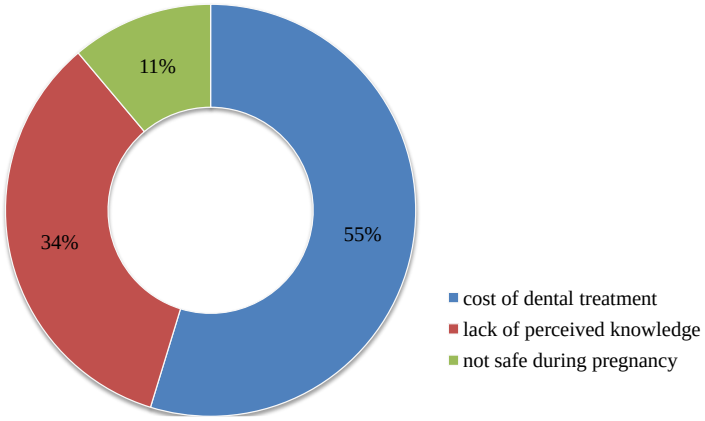

Figure 2. Barriers to accessing dental services.

decay was sugar and 31.9% thought that the cause was bacteria. Just over half (52.4%) of the women thought that tooth decay could be prevented by tooth brushing, while 22.1% thought it could be prevented by avoidance of sweets and sugar.

A majority of the women (58.3%) thought that the cause of gum disease was unclean teeth and food debris and 71.7% thought that gum disease could be prevented by tooth cleaning and brushing while 17.9% did not know. Up to 252 (85.4%), pregnant women acknowledged that dental health was very important for their health but 213 pregnant women said dental problems do not affect their unborn babies' health.

The main sources of oral health knowledge were: television (cited by 59.0% of the women), family (51.9%), dentists (49.0%), and social media (42.4%).

3.5. Clinical Examinations

A clinical examination was carried out on each subject to evaluate oral health status. Up to 252 had gum diseases and 216 had dental caries. Two hundred and sixty-eight (90.8%) globally had at least an oral health problem. This gives a prevalence of 85.4% and 73.2% for periodontal disease and tooth decay, respectively. The oral health status of the respondents is shown in **Table 3**. The oral hygiene, periodontal, and gingival indices scores are as shown.

Poor oral hygiene scores and bleeding gums were observed in 148 (50.2%) and 182 (61.7%) of the participants, respectively. A healthy gingival status was observed in only 43 (14.6%).

4. Discussion, Conclusions and Recommendations

4.1. Discussion

This study evaluated the pattern of oral health among a group of pregnant women receiving antenatal care services in Bamenda.

Pregnancy constitutes a special physiological state characterized by a series of temporary adaptive changes in the body structure as a result of increased production of reproductive hormones that include estrogen, progesterone, gonadotropins,

Table 3. Oral health status of pregnant women.

Variable	Frequency (N)	Proportion (%)
Oral hygiene score		
Good	54	18.3
Fair	93	31.5
Poor	148	50.2
Periodontal score		
0: Healthy	57	19.3
1: Bleeding	182	61.7
2: Calculus, <3 mm pockets	46	15.6
3: >3 mm pockets	10	3.4
Toothdecay		
Caries	216	73.2
No caries	79	26.8

and relaxin. The oral cavity is also affected by such endocrine actions and may present both transient and irreversible changes as well as modifications that are considered pathological.

In the present study, nearly 60% of pregnant women clean their teeth less than or once a day. The poor oral hygiene measures of pregnant women in the present study could be due to a lack of awareness among these pregnant women of simple oral health preventive measures (oral hygiene), as a majority of pregnant women do not receive dental care information during ANC [10]-[15].

The prevalence of periodontal diseases was high in the present study with only 14.6% of pregnant women having healthy periodontium. The high prevalence (85.4%) of periodontal disease in the present study is comparable to studies done on pregnant women by Lasisi *et al.* in Nigeria, with a prevalence of (89.6%) [6]. This prevalence is equally similar to a study by Tonello *et al.* in Lucas do Verde in Brazil, with a prevalence of 83.0% [16]. However, the findings in this study are higher than the prevalence of periodontal diseases among pregnant women in Yaoundé in a study carried out by Kashetty *et al.*, with a prevalence of 74.3% [7]. The prevalence equally varies with the study done by Wandera *et al.* in Uganda at 67.3% [17].

The increased prevalence of periodontitis could be due to the poor oral hygiene status of pregnant women, which may have aggravated the influence of hormones on the periodontium. This could also be since most pregnant women lack knowledge about the competent practices of good oral hygiene measures, as in the present study.

To add to this, the high cost of dental treatment could also be a reason for the high prevalence. This is seen with the high number of subjects who have never visited a dentist and the majority of the pregnant women (59.3%) had poor oral health practices.

The observed prevalence of dental caries in the current study was 73.2%. This value is comparatively lower than that obtained by Kumar *et al.* on pregnant women in Yaoundé, with a prevalence of 97.3% [11]. It is also different from the findings of Bengondo *et al.* in Belgaum (60.4%), India [18]. The high dental caries experience in the present study might be due to exposure to high consumption of refined carbohydrates, sugars, and poor oral hygiene. Poor oral hygiene greatly has an impact on the occurrence of dental caries. In this study, over 50% of pregnant women have poor oral hygiene.

The results of this study show very low utilization of dental services by pregnant women with an attitude of negligence towards their oral health. This can be seen with a very low proportion of 10.8% of pregnant women who did dental checkups and care. Oral health is given little importance by pregnant women. This can be due to the low socioeconomic status of most women, and lack of knowledge about the importance of oral health care services.

The main barriers cited by the pregnant women were the high cost of dental services, dental treatment being unsafe during pregnancy, and lack of knowledge about the importance of dental care on pregnancy outcomes. This can be so because no oral health programs exist in Cameroon to promote oral health and prevent oral diseases. Also, oral health is not routinely discussed during ANC visits.

4.2. Conclusions

From the results obtained in this study, the following conclusions can be made:

1) The prevalence of oral pathologies in pregnant women in Bamenda was 73.2% and 85.4% for dental caries and periodontal disease, respectively;

2) Only 10.8% of pregnant women in Bamenda access oral health services;

3) The barriers to accessing oral health services were:

- High cost of dental services (54.9%);
- Lack of perceived need (34.2%); and
- Concern about the safety of dental treatment (11.2%).

4.3. Recommendations

1) Wide-scale education and public awareness program should be instituted in the ANC package with the involvement of midwives, obstetricians, and dentists. This will help to encourage access to a comprehensive oral health package and interventions, which will be beneficial in our setting where many women do not access or sparingly access preventive or therapeutic oral health services;

2) The cost of dental treatment should be subsidized as part of the ANC package to reduce the barriers to oral health services.

Conflicts of Interest

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

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Appendix

Information Form

Dear Participant,

I am Akwa Divine Bong, a dentist and a master of public health final year student.

To obtain a degree of master in public health at the University of Bamenda, we have to carry out research and publicly defend it.

Research Topic

Oral Health Patterns among a Population of Pregnant Women Attending Antenatal Clinic in Bamenda, Cameroon.

This work will be carried out under the supervision of:

Professor Bengondo Messanga C., oral and maxillofacial surgeon;

Dr. Takang William, an obstetrician/gynaecologist.

Research Objective

To know your view about dental health, barriers you face, and your oral health status.

The Benefit of the Research

This will help oral health specialists, health systems, and decision-makers to take steps geared towards improving your health and that of your children.

Research Procedure

In this study, you will fill out a questionnaire about your oral health and a dentist will examine your oral cavity. Information to be collected includes demographic information such as age, education, employment status, parity, marital and pregnancy status, stage of pregnancy, and medical history, if applicable.

Ethical Consideration

We assure you that:

1) All information you provide will be confidential and will be used solely for research;

2) The research has no adverse effect on you and the pregnancy outcome.