

**FACTORS ASSOCIATED WITH ORAL HEALTHCARE UTILIZATION AMONG
PREGNANT WOMEN ATTENDING ANTENATAL CARE CLINICS IN KIAMBU
LEVEL V HOSPITAL, KIAMBU COUNTY, KENYA**

BY

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DEDICATION

I dedicate this work to my family and friends for their support and perseverance.

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LIST OF ACRONYMS

ANC	Antenatal care
CIDP	County Integrated Development Planning
COHO:	Community Oral Health officer
ECC	Early childhood caries
HIC	High income countries
KNBS	Kenya National Bureau of Statistics
KNH-UON-ERC	Kenyatta National Hospital - University of Nairobi Ethics and Research Committee
LMICs	Low- and medium-income countries
MCH	Mother and Child health
MOH	Ministry of Health
OHRQOL	Oral health related quality of life
SPSS	Statistical software for social sciences
UNICEF	United Nations International Children's Emergency
USA	United States of America
WHO	World Health Organization

DEFINITION OF OPERATIONAL TERMS

Antenatal/ prenatal	Preventive healthcare directed towards the avoidance of pregnancy-related health risks through regular check-ups and promotion of a healthy lifestyle
Area of residence	Where the pregnant woman resides, rural or urban setting.
Access to oral health counselling	Any form of oral health education the pregnant woman received during ANC visits
Age	Number of years of the pregnant woman as at her last birthday
Dental caries	A breakdown of teeth caused by acids made by bacteria.
Distance	Length in kilometers the pregnant woman travel, to get to Kiambu level v hospital
Education	The highest level of education attained by the pregnant woman
Employment	What the pregnant woman is engaged in for purposes of generating an income.
Gingivitis	Swelling, inflammation of gums around the teeth.
Level of income	How much money the pregnant woman's household generate per month
Level of satisfaction	Extent to which the pregnant woman was content with the services offered by the oral health care provider
Low birth weight	Infants who are born weighing less than 2,500 grams.
Marital status	Described as whether the pregnant woman has a spouse or not.

Oral health	A condition characterized by being free from any oral (mouth, throat, teeth and gums) disorders or diseases (periodontal gum disease) that may limit one's capacity from biting, munching, smiling, talking, and psychosocial well-being.
Oral health care	Any care provided by a licensed oral healthcare provider given to teeth and the supporting structures. It includes diagnostic, curative, preventive as well as replacement services required to maintain proper oral health.
Oral healthcare utilization	The outcome variable of interest. Measured as to whether the pregnant woman had visited a dentist during the current pregnancy or not
Parity	The number of times the woman has been pregnant with a foetus of 20 weeks or beyond.
Periodontitis	A category of inflammatory diseases that affect tissues surrounding the teeth
Preeclampsia	A pregnancy complication that can lead to severe/ fatal complications for the mother and the unborn child if left untreated
Preterm	Premature delivery. The birth of a baby at less than 37 weeks of gestational age.
Religion	Any particular system of faith or worship by the pregnant woman
Socio-cultural beliefs	Any social or cultural beliefs, myths or practices that influenced or continues to influence oral healthcare use.

Time taken

How long it took before being attended to, at the dental clinic

Transport means

How the pregnant woman got to Kiambu level v hospital

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ABSTRACT

Background:

Oral health care in pregnancy is crucial for the health of the mother and the unborn child. Pregnancy is associated with hormonal and behavioural changes that lead to dental problems, including gingivitis, periodontitis, and dental caries. Untreated oral diseases can lead to poor pregnancy outcomes and poor pregnancy-related quality of life. A regular dental check-up is recommended during pregnancy.

The core objective of this study was to find out the factors associated with oral healthcare utilization among pregnant women at Kiambu level v hospital.

Methodology:

This was a cross-sectional study design targeting 308 pregnant women attending antenatal care clinics. Participants were selected through systematic random sampling, and data collected through a structured questionnaire. Data collected was on utilization of oral health services during pregnancy and factors affecting the utilization. Binary logistic regression was used to analyse data.

Results:

The study response rate was 99.3%. The age distribution of the pregnant women ranged between 18 and 45 years. Only 7.84% of the pregnant women had seen a dentist in their current pregnancy. The two key reasons cited for such a visit were routine check-ups and bleeding gums. Among patient-related factors, only education ($p=0.008$) had a statistically significant association with oral health care utilization. Among the health system-related factors, only access to oral health counselling ($p = 0.010$) was shown to have a statistically significant link with oral health care utilization. None of the sociocultural factors were found to be statistically significant.

Conclusion:

The undermentioned conclusions were made on the basis of this study's findings: (a) Very few pregnant women attending Kiambu level 4 hospital antenatal care clinics utilized oral health care; (b) There was a significant association between access to antenatal oral health counselling and oral health utilization; (c) There was a significant association between the women's level of education and oral healthcare usage. Higher utilization was observed among those with a secondary level of education.

Recommendation:

1). There is a need to include antenatal oral health microteaching in primary healthcare to improve oral health utilization among pregnant women. This oral health education should be available to all, irrespective of education level. 2). The study was conducted during the Covid-19 Pandemic, a follow up study to show if there will be any significant difference in numbers utilizing oral health care in pregnancy post Covid is recommended. 3). A larger sample size study and an additional qualitative method like focus group discussion highly recommended.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Oral health can be defined as the absence of disease and optimal functioning of the mouth and its tissues in such a manner that preserves the highest level of self-esteem. It describes a standard of oral and related tissues, that enables one to eat, speak and socialize without active disease, discomfort, or discouragement which consequently contributes to their overall well-being (*Hill et al., 2013*). A World Health Organization (WHO 2003), report highlights various risk factors that may predispose one to oral diseases. These factors include poor dietary habits, alcohol intake, poor oral hygiene practices as well as tobacco use, and pregnancy.

Globally, the oral health disease burden is high (*Petersen, 2003*). In more recent submissions, the World Health Organization (WHO 2017), estimates that oral diseases affect at least 3.5 billion individuals globally, with untreated dental caries of the permanent teeth standing at an estimated 2 billion people, accounting for the most prevalent health condition globally in 2017. In Africa, oral diseases have been recognized as a major public health concern. The same report shows that approximately 400 million people suffered from oral diseases in the African region in 2017. In Kenya, the prevalence of oral diseases in the adult population is equally high, with a prevalence of dental caries and gingival bleeding standing at 34.3% and 98.1% respectively (MOH 2015).

The risk profile for oral diseases differs among different groups. It is high among school children, the youth, the elderly, people living with H.I.V., (*Petersen et al.,2005*), and pregnant women (*Bersell, 2017*). Pregnancy is associated with hormonal and behavioural changes. These changes are often linked to an increased risk of dental conditions, especially mucosal

lesions. Pregnant women also tend to have difficulties keeping up with good oral habits. This makes it hard to maintain proper oral health, hence predisposing them to both hard and soft tissue conditions. Pregnant women may also experience an increased liking and consumption of sugary foods which ultimately predisposes them to dental caries (*Steinberg et al., 2013*).

The prevalence of oral diseases among pregnant women globally is 44.2% (*Jain & Kaur, 2015*). Among African countries, the prevalence of oral diseases in pregnancy stands at 19.1% with gingivitis as the most common oral disease among pregnant women (*Adesina et al., 2018*). In Kenya, a study conducted by Wangeci, 2020, reported that approximately 99% of women had some form of gingival/periodontal disease.

Although oral health care is recommended during pregnancy, there is still very low demand for it globally, ranging from 3.7% to 58.3% majority of whom present due to pain (*Grossa, 2018*). No published findings exist on the prevalence of oral health care utilization in Kenya, but studies carried out within the African region reported similarly low prevalence rates. A study done in Tanzania reported that only 31.8% (*Mwangosi et al., 2012*) of pregnant women utilized oral health care services during pregnancy, while a similar one conducted in Nigeria reported a prevalence of 27.9% (*Bashiru et al. 2014*). Factors that affected utilization in these studies were demographic factors (parity, marital status, age, and nationality), and socio-economic factors (educational level, income, and the health insurance type). Many behavioural and psychological factors played a role in the utilization, including oral health practices, oral health, and pregnancy beliefs (*Grossa, 2018*).

Despite the emphasis on the importance of antenatal oral health care, there is limited data on oral health care utilization as well as factors associated with this usage among ANC mothers in Kenya. Assessing the level of oral health care utilization by ANC mothers and

factors influencing this utilization will aid in oral health policy formulation and consequently improve oral health service utilization by ANC mothers in the country. This study, therefore, aims to find out the factors associated with oral healthcare utilization among pregnant women in Kiambu, Kenya.

1.1 ORAL HEALTH DISEASES AND PREGNANCY

1.1.1 PERIODONTAL DISEASES AND PREGNANCY OUTCOME

An estimated 30% of all pregnant women suffer from periodontal diseases (Steinberg et al., 2013). Periodontal diseases in pregnancy have been associated with low birth weight, preterm deliveries, and preeclampsia (*Ide et al.*, 2013). The risk of low birth weight is higher in pregnant women with periodontitis (*Ide et al.*, 2013). Low birth weight is a leading cause of neonatal mortality and morbidity. Unmanaged preeclampsia can progress to eclampsia, a leading cause of maternal and neonatal mortality (*Soucy-Giguère et al.*, 2016). In low-resource settings, maternal and neonatal deaths have remained relatively high. Globally, more than 300,000 women died from pregnancy related complications, an estimated 2.7 million babies died less than a month after their birth, and a further 2.6 million babies were stillborn (*Alkema et al.*, 2016). High-quality ANC care can lower these maternal and neonatal morbidity and mortality levels through prevention and early detection, and management of pre-existing conditions, including periodontitis (*WHO*, 2018). Periodontal treatment and therapy during pregnancy can lower the risks of preterm and low birth weight (*Wrzosek et al.*, 2009).

1.1.1.1. DENTAL CARIES AND PREGNANCY

Pregnancy is also associated with an increased risk of developing dental caries. There is an alteration in saliva composition in late pregnancy with a resultant upsurge in streptococcus mutans (*Steinberg et al.*, 2013). There is also an increased risk of bacteria transmission by the mother to the unborn child, which increases the risk of ECC (*Damle et al.*, 2016). Maintaining

good oral health in pregnancy is therefore paramount for both mother and child. Treatment of oral diseases in pregnancy is safe. Timely treatment of these diseases helps improve both pregnancy outcomes and oral health-related quality of life (*Bersell, 2017*).

1.1.2. ORAL HEALTH-RELATED QUALITY OF LIFE AND PREGNANCY

Oral Health-Related Quality of Life (OHRQoL) has been described as the effect of oral diseases on aspects of day-to-day living that are important to the person, with those effects being sufficient, either in terms of severity, frequency, or duration, to affect that person's view of their overall life. During pregnancy, any oral health disease or condition that may alter an otherwise normal pregnancy would be deemed to affect the OHRQoL. While the simplest form of poor OHRQoL would be related to discomfort due to a mucosal lesion or early signs of dental caries, the severity of alteration may be the summation of effects of dental sensitivity, pain, and the altered normal pregnancy as a result of these events. Detrimental pregnancy outcomes that could be traced to oral health would also be termed as forms of poor OHRQoL. Factors that could influence the OHRQoL during pregnancy include refusal by the dentists to treat pregnant women, negative attitudes about pregnancy, and concerns about foetal health (*Fakheran et al., 2020*).

1.2. ORGANIZATION OF ANTENATAL CARE CLINICS/MCH IN KENYA

Delivery of services at MCH is grounded on WHO recommendations regarding Focused antenatal care (FANC) (*WHO, 2018*). FANC recommends four comprehensive and targeted visits. Each visit comprises monitoring blood pressure, urine testing, foetal growth monitoring, tetanus toxoid immunization, iron, folic supplementation, deworming after the first trimester, and at least two intermittent doses of preventive treatment for malaria in malaria prone areas. There is a lack of emphasis on oral disease screening and referrals despite the importance

of good oral health in pregnancy. In Kenya, the mother and child handbook in use has missing important information on oral health-related pregnancy outcomes (MOH, 2016).

Service providers at MCH include nurses, nutritionists, clinical officers, medical officers, and gynaecologists. The WHO recommendations on staff establishment to include oral health personnel in prenatal care (Prasad M et al., 2019), have not been achieved locally.

Microteaching at MCH is currently done by nurses, clinical or medical officers, and nutritionists. Teaching is on care during pregnancy and danger signs during pregnancy. Oral health education by an oral healthcare provider is missing (MOH, 2016).

1.3. ORAL HEALTHCARE /DELIVERY IN KENYA

Oral diseases are some of the most expensive disease entities to treat and often require high out-of-pocket payments. Even with medical insurance schemes, essential oral healthcare is often not included or is incommensurate to the cost of treatment. The focus of interventions is generally on curative services that require costly equipment and highly skilled manpower. The increased demand for curative services has been prompted by low prioritization to implement preventive and promotive oral health programs, which are proven to be more cost-effective. This has in turn led to outstripping the facilities and human resources available (MOH, 2022).

Oral health care services are available in public, private, and faith-based (mission hospitals) institutions (Kaimenyi 2014.). The dental clinic is usually located as part of the outpatient department. Most of these are in facilities at Kenya Essential Package for Health (KEPH) tier 3 and above. This level of care when well equipped, offers the whole range of oral health services, preventive, urgent treatment, restorative, rehabilitative, and minor oral surgery. There is rarely any provision of oral health services in primary care settings. These services are offered by oral health personnel who include dental specialists, dentists, community oral health

officers, and dental technologists (MOH ,2022). The majority of these personnel work in urban settings, making it harder to access oral health care services for the rest of the Kenyan people (MOH, 2015).

There is a need for accessible, affordable, quality, and acceptable oral health care for all. By the end of August 2021, the dentist population ratio was 1:100,000, according to the public online register of the regulating body, Kenya Medical Practitioners and Dentists Council (KMPDC). This falls short of the WHO recommended ratio of 1:7000 (MOH ,2015). An analysis of procurement and allocation of dental equipment in public health facilities indicates that most of what is availed does not function at all while supplies of dental consumables are erratic at best. The physical infrastructure for dental clinics in a majority of public health institutions in Kenya is inadequate whereas, in private facilities, it is payments for services rendered, hence patients tend to keep off dental treatment (MOH 2015).

1.4. PROBLEM STATEMENT

Demand for oral healthcare among pregnant women is still low despite emphasizing the importance of antenatal oral health care. Globally, the prevalence of oral healthcare utilization ranges from 3.7% to 58.3%. These low utilization levels are worrying due to the high prevalence of dental diseases and associated poor quality of life in pregnancy. The prevalence of oral diseases among pregnant women globally is 44.2% (Jain & Kaur, 2015). Oral diseases that are common in pregnancy include gingivitis (60-75%), dental caries, periodontitis (30%), tooth erosion, and oral pregnancy tumours (5%) (Steinberg, 2013; Ide, 2013). Among African countries, the prevalence of oral diseases in pregnancy stands at 19.1%, with gingivitis as the most common oral disease among pregnant women (Adesina et al., 2018). In Kenya, a study conducted by Wangeci, 2020, reported that approximately 99% of women had gingival/periodontal disease. The high prevalence is a challenge for periodontal diseases in pregnancy has been linked to poor maternal outcomes like pre-eclampsia (2-8% of pregnant

women), preterm deliveries (11%), or even underweight babies (14.6%) (*Alkema et al.*, 2016) and a poor oral health-related quality of life.

Despite the high prevalence of periodontal disease, there is no published literature on the prevalence of oral health care utilization among pregnant women in Kenya. However, the oral health-seeking behaviour of the adult population has also been reported to be poor, with only 11% of respondents visiting a dentist in the last year (*MOH-K, 2015*). Majority of pregnant women fall under this adult population category. The low utilization is a challenge, especially among pregnant women, as they are more prone to increased oral health diseases due to hormonal and behavioural changes.

The present study postulates that many factors intersect synergistically, leading to poor utilization of oral healthcare among pregnant women. For this reason, the study was designed to determine factors associated with oral healthcare utilization among pregnant women attending antenatal care clinics in Kiambu Level v Hospital, Kiambu County, Kenya.

1.5. RESEARCH QUESTIONS

This study aimed at answering the following questions:

1. What is the level of utilization of oral health care services among pregnant women attending antenatal care clinics in Kiambu level v hospital?
2. What factors affect the utilization of oral healthcare services among pregnant women attending antenatal care clinics in Kiambu level v hospital?

1.7 OBJECTIVES

1.7.1. MAIN OBJECTIVE

The main objective of this study was to determine the factors associated with oral healthcare utilization among pregnant women attending antenatal care clinics in Kiambu Level v Hospital, Kiambu County, Kenya.

1.7.2. SPECIFIC OBJECTIVES

1. To determine the level of oral health care utilization among pregnant women attending antenatal care clinics in Kiambu level v hospital.
2. To determine whether there is any association between patient-related factors and oral health care utilization among pregnant women attending the antenatal care clinics in Kiambu Level v hospital.
3. To determine if there is any association between health-systems-related factors and oral healthcare utilization among pregnant women attending antenatal care clinics in Kiambu level v hospital.
4. To determine if there is any association between socio-cultural factors and oral health care utilization among pregnant women attending the antenatal care clinic in Kiambu Level v hospital.

1.8. JUSTIFICATION

There is a need to increase knowledge on the importance and safety of dental care during the perinatal period. When a pregnant woman has utilized oral health services during pregnancy, oral disease occurrence and progression are reduced, and/or ultimately halted. This in turn leads to better nutrition, decreased risk of bacterial transmission to the child, and overall improved oral health quality of life. Consequently, she has a better pregnancy and maternal outcome, which in turn promotes economic development due to increased productivity by women within the reproductive age.

Available literature places the rate of utilization at (58.3%) to a low of (3.7%) Most of these studies are in high-income countries. Very few studies have been carried out in low- and middle-income countries. The factors that affect utilization reported in these are very specific to the study population. There is very little information on the actual utilization and factors

affecting the utilization of oral health among pregnant women in Kenya. Since health is very contextual, it is important, therefore, to conduct a local study on the utilization of oral health services among pregnant women to generate information that will be shared with various policymakers in both county and national governments to formulate targeted policies that will enable better access to service.

CHAPTER TWO

LITERATURE REVIEW

2.1. INTRODUCTION

This chapter reviews studies on oral health care and the predictors of oral health care utilization among pregnant women. It includes studies conducted from the year 2005 to date. The search was done through PubMed and Google scholar searches. The keywords searched; were “utilization, practices, and determinants of oral health services use among pregnant women.” The search yielded the following studies respectively; 452 on utilization, 252 on oral health practices, and seven on the determinants of oral health services use among pregnant women. After eliminating duplicated studies, 22 met the criteria set and were included in the review.

2.1.1. ORAL HEALTHCARE UTILIZATION AMONG PREGNANT WOMEN.

The use of oral healthcare among expectant women has shown variability between and within countries, as shown in Table 1 below. Accessed literature showed that a cross-sectional study was the preferred design to assess usage. The review found that the prevalence of pregnant women using oral health care varied from a high of 83% to a low of 3.7%. These findings further revealed that the most common reason for seeking oral health care during pregnancy was dental pain, followed by check-ups.

In North Carolina, USA, Boggess *et al.*, (2010) reported that only 26% out of 599 pregnant women received regular dental care during pregnancy. However, in Iowa, USA, in a cross-sectional study among 625 pregnant women in Johnson County, 49% had visited a dentist during pregnancy, mainly for cleaning (*Al Habashneh RI et al.*, 2005).

The South American region has reported better utilization of oral health during pregnancy than their counterparts in the USA. In Colombia, for example, Julián *et al.*, (2014) noted that 83%

of pregnant women had utilized oral health care services. Similarly, a study among 302 Brazilian pregnant women showed the prevalence of oral health services utilization was 50 % (*Ruiz et al., 2019*). The high prevalence was attributed to inclusion of oral health referrals of pregnant women attending antenatal care together with the development of oral healthcare guidelines for pregnant women in Columbia (*Julián et al., 2014*), and the extensive antenatal program in the primary health care programs in Brazil (*Ruiz et al., 2019*) respectively.

European countries mirror their American counterparts. The disparity is observed between different European countries. Low utilization was reported in North London among 206 immigrant women's dental attendance during pregnancy at 33%. Additionally, only half of these received any dental treatment (*Hullah et al., 2008*). Similarly, results from a cross-sectional study by Petit et al., (2021) showed a prevalence of 47%. In Northern Greece, only 27.3% of all pregnant women sampled indicated visiting a dentist during pregnancy (*Dinas et al., 2007*).

Contrasting findings in Europe, a study conducted among 275 women attending prenatal care in South-East Hungary revealed that more than 70% visited a dentist during pregnancy (*Battancs E et al., 2011*). The high prevalence was attributed to prenatal education on the importance of oral health care.

In Asia, the mixed pattern of utilization continues to be revealed. In Turkey, for instance, results from a study conducted with 351 mothers showed that only 13.7% had visited a dentist during pregnancy (*Özen et al., 2012*) while another one among 474 women showed only 12.4% of the women had a dental visit during their current pregnancy (*Gokmen Karasu et al., 2017*). On the contrary, higher utilization rates have been reported elsewhere in the same continent. For example, a study done in Kuwait among 650 pregnant women found that 50% utilized dental services (*Al-Shammari et al., 2007*). Similarly, a study sample of 800 participants in the United

Arab Emirates, showed that 58.3% of pregnant women visited the dentist (*Hashim, 2012*). In Karachi, Pakistan, *Ali et al., (2018)* posited a utilization rate of 37.4% among pregnant women. Similarly, *Malkawi ZA et al., (2014)* reported a 39.5% prevalence of dental consultation among 154 pregnant women in Jordan, mostly due to pain.

In India, two cross-sectional studies reported different levels of utilization, indicating variability within the country. According to *Sajjan et al., (2015)*, 40% of pregnant women had visited a dentist due to dental problems. A similar study reported that 16.7% of the participants had a routine use of dental clinics in pregnancy (*Sun et al., 2014*).

In Africa, studies revealed low to very low levels of oral health services utilization among pregnant women. In Egypt, a cross-sectional study done among 200 pregnant women found that 24% had visited a dental surgeon during pregnancy (*Mousa et al., 2019*). Similarly, findings from a study in Sudan among 420 pregnant women attending prenatal clinics indicated that only 10.2% had visited a dentist during pregnancy (*El-Mahdi Ibrahim et al., 2016*). In Nigeria, similar differences in the levels of utilization were highlighted in differing studies. One study showed that only 27.9% had visited a dentist during pregnancy (*Bashiru et al., 2014*) while another cross-sectional study showed that only 7% had visited a dentist during the current pregnancy (*Adeniyi, A A et al., 2010*). In Tanzania, variability has been shown with one cross-sectional study among 305 pregnant women showing 31.8% consulting a dentist in their current pregnancy (*Mwangosi et al., 2012*), while a similar study in the same country among 380 pregnant women attending ANC indicated that only 3.7% reported having visited a dentist during pregnancy (*Mwaiswelo et al., 2008*). This variation could be attributed to the inclusion of primary oral health care in the piloting phase of a curriculum change in the country (*Mumghamba, 2014*). There is no local published literature on oral healthcare utilization among pregnant women.

TABLE 1: SUMMARY OF ORAL HEALTH UTILIZATION

AUTHOR	TARGET POPULATION	COUNTRY	PERCENTAGES	REASON FOR UTILIZATION
Bogges et al., (2010)	599 pregnant women	USA	26%	Check-up
Al Habashneh R1 et al., (2005)	625 post-partum women	USA	49%	Check-up and cleaning
Julián et al. (2014)	998 pregnant women	Columbia	83%	Routine antenatal care
Ruiz et al., (2019)	302 pregnant women	Brazil	50%	Not indicated
Hullah et al., (2008)	206 pregnant women	London	33%	Pain
Petit et al., (2021)	212 pregnant women	France	47%	Check-up
Dinas et al., (2007)	Pregnant women	Greece	27.3%	Not indicated
Battancs E et al., (2011)	275 pregnant women	Hungary	70%	Referral from ANC clinic
Özen et al., (2012)	351 post-partum women	Turkey	13.7%	Not indicated
Gokmen Karasu et al., (2017)	474 pregnant women	Turkey	12.4%	Cleaning

Al-Shammar et al., (2007)	650 pregnant women	Kuwait	50%	Pain
Hashim (2012)	800 pregnant women	United Arab Emirates	58.3%	Pain
Ali (2018)	Pregnant women	Pakistan	37.4%	Not indicated
Malkawi ZA et al., (2014)	154 pregnant women	Jordan	39.5%	Pain
Sajjan, P. et al., (2015)	332 pregnant women	India	40%	Dental problems
Sun et al., (2014)	Pregnant women	India	16.7%	Check-up
Mousa et al., (2019)	200 pregnant women	Egypt	24%	Not indicated
El-Mahdi Ibrahim et al., (2016)	420 pregnant women	Sudan	10.2%	Pain
Bashiru et al., (2014)	Pregnant women	Nigeria	27.9%	Not indicated
Adeniyi, A A et al., (2010)	324 pregnant women	Nigeria	7%	Pain
Mwangosi et al., (2012)	305 pregnant women	Tanzania	31.8%	Not indicated
Mwaiswelo et al., (2008)	308 pregnant women	Tanzania	3.7%	Pain

2.2. PREDICTORS OF ORAL HEALTH CARE UTILIZATION AMONG PREGNANT WOMEN.

2.2.1. SOCIO-DEMOGRAPHIC FACTORS INFLUENCING ORAL HEALTH CARE UTILIZATION

Age

Age plays an essential role in determining oral health care utilization by pregnant women (*Grossa, 2018*). Results from a systematic review analysis on determinants of oral healthcare supported this; that there exists a relationship between age and oral health services utilization among pregnant women, suggesting that older women were more likely to seek dental care services as opposed to younger ones (*Grossa, 2018*). In a cross-sectional study among pregnant women aged 18-44 years in Nigeria, results showed a significant relationship between a woman's age and her utilization of oral services. Older women had utilized oral healthcare services more than their younger counterparts (*Adeniyi, A A et al., 2010*).

On the contrary, a study conducted in Chapel Hill in the USA revealed that the percentage of women aged 36 years or older who had routine dental care utilization during pregnancy was lower than their younger counterparts (*Boggess, 2010*).

Religion

Findings by Bahramian et al., (2018) indicated that some pregnant women are not comfortable receiving dental treatment from a male dentist, based on their religious perspectives. For some women, the reluctance towards male dentists offering dental treatments emerges from their partners being biased against the male dentists; thus, the women prefer same-sex dentists to provide care where possible (*Bahramian et al., 2018*).

Parity

The number of children that a woman has is a significant determinant of maternal knowledge on the importance of seeking healthcare services. This has been attributed to knowledge acquired during previous pregnancies, which may include oral health education (*Li & Caufield, 1995*). This is supported by results from a study that found that women with more than three children had visited a dentist in their current pregnancy (*Bashiru et al., 2014*).

2.2.2. SOCIO-ECONOMIC FACTORS

Income level of the woman

The income level of an expectant mother can either act as a hindrance, or a catalyst to the exploitation of health services, including oral health care services (*Garcia et al., 2013*). Financially stable mothers quickly seek health services as they have the transportation and health insurance, or they can pay for services offered (*Rurangirwa et al., 2017*). Rocha et al., (2018) supports this fact by indicating that the income-level of pregnant women affects oral health as women with low-income levels cannot afford oral health care. However, pregnant women with low income-levels have a lower likelihood to seek regular oral health services when compared with women who have a higher income level (*Al-Hussyeen, 2010, Sun et al., 2014*).

Pregnant women with low financial stability are more likely to use their funds on basic needs and necessities which they deem more important, including food and shelter, instead of seeking oral health services. Mothers are likely to seek oral health services when they have sufficient income to seek these services (*Chorongo et al., 2016, Grossa, 2018*).

Level of education

Education can influence oral healthcare utilization during pregnancy. The higher the education level a woman has attained, the higher the odds of utilizing oral health care services during pregnancy. In a study done in India, for example, results showed an increase in the utilization of oral health services with growing levels of education. The study stated that educated women were more likely to be more knowledgeable and aware of the significance of oral health and its utilization during pregnancy (*Baskaradoss et al., 2020*).

2.2.3. PSYCHOSOCIAL FACTORS

The anxiety of dental treatment has been associated with a lack of oral health care utilization during pregnancy attributed to the overall fear of visiting the dentist (*Bahramian et al., 2018*). Other psychosocial factors are: unplanned or consecutive pregnancy, tediousness, lethargy and impatience experienced during pregnancy which were also shown to result in a decreased chance of dental services utilization (*Bahramian et al., 2018*).

2.2.4. PERCEIVED RISK TO THE UNBORN CHILD

Studies have demonstrated that dental treatment is generally safe and does not pose any risk to the unborn child, and timely dental treatment results in better pregnancy outcomes. However, women still shy away from seeking dental treatment during pregnancy (*Wrzosek et al., 2009*). Findings from a study in northern Greece showed that a majority (72.2%) of women perceived dental treatment during pregnancy as detrimental to the pregnancy outcome (*Dinas et al., 2007*).

2.2.5. HEALTH SYSTEM-RELATED FACTORS

Many health system-related factors can impact health care utilization. However, according to a systematic review analysis, the following factors were notably cited to affect oral healthcare utilization (*Grossa, 2018*).

Accessibility of the health facility

The accessibility of a health facility influences how patients acquire health services, with individuals living far experiencing barriers such as increased transport costs in accessing the facility (Azodo *et al.*, 2013). In a study conducted in rural America, one of the major factors that affected seeking dental services was the distance to the health facility (Downe *et al.*, 2017). Conversely, individuals who are in urban areas are closer to health facilities; therefore, pregnant women cover a shorter distance to acquire health services (Sealy *et al.*, 2017).

The cost involved/ insurance coverage.

The cost implication and not having dental insurance cover in accessing dental treatment inhibits oral services utilization (Al Habashneh *et al.*, 2005). This is aligned to findings by a qualitative study done in Iran, where a large proportion of pregnant women (95%) revealed that their reluctance to have consistent dental visits was because of high dental service costs and inadequate dental insurance coverage (Bahramian *et al.*, 2018). A similar study concluded that limited access to affordable dental services was a major barrier to obtaining proper dental care (George *et al.*, 2013)

Perceived quality of health services

Studies have shown that health facilities with no drugs, limited or poorly trained health professionals, poor attitude of healthcare providers, and extended patient waiting time tend to demotivate patients from seeking health care (Downe *et al.*, 2017, Roshani M Chawla *et al.*, .., 2017).

Counselling on oral health

During pregnancy, most women are motivated to adopt a healthy lifestyle, making pregnancy a teachable period. Oral health counselling during antenatal clinic improves the odds of oral service utilization (*Julián et al., 2014, Ruiz et al., 2019*).

2.2.6. SOCIAL AND CULTURAL DETERMINANTS OF HEALTHCARE UTILIZATION.

Culture refers to shared patterns of practices, values, norms, and beliefs unique to a particular group of persons or society (*Milfont et al., 2006*). Culture defines the group's customs of family life, childbirth, rearing, aging and death, and identifying disease and healthcare-seeking behaviour about health or medical disorders (*Milfont et al., 2006*). Sometimes these beliefs and practices can promote or hinder one's ability to source for health care services (*Butani et al., 2008*).

There are myths associated with oral health seeking during pregnancy, leading to delayed or avoidance of oral healthcare utilization during pregnancy (*Ajayi et al., 2013*). Some of the myths and beliefs include: 1) the myth that teeth are drained of calcium during pregnancy to aid in bone formation of the foetus, hence one tooth is lost with every pregnancy, 2) the false belief that dental treatment is risky in pregnancy and that radiological exposure and anaesthesia administration can lead to miscarriage (*Ajayi et al., 2013; Bahramian et al., 2018*).

Cultural beliefs and participation in social events before pregnancy influence dental service utilization. A study done in Burkina Faso pointed out a significant relationship between socio-cultural factors and oral health care services use in adults who had encountered oral health issues in the preceding year (*Varenne et al., 2006*).

A study conducted in Iran also found that cultural taboos have prevented pregnant women from getting timely and appropriate dental care. Some respondents believed in traditional and herbal

medicine, while others believed extraction of roots was losing a body organ (*Bahramian et al., 2018*). Similarly, many studies depicted a close relationship between cultural perceptions and norms with dental service utilization by pregnant women. Some of these concerns include; that extraction may cause abortion; a radiographic examination may result in malformation of the developing foetus and; prohibition of pain medicine as a barrier related to fear of postoperative pain and not being medicated (*Grossa, 2018*).

2.3. THEORETICAL AND CONCEPTUAL FRAMEWORK:

Health care utilization behaviour models provide guidance for defining variables, specifying the relationships between them and evaluating programs and policies concerned with access to and use of health care services. The four main health utilization models are: (a) models of patient decision making, grounded in sociological theory and research; (b) the health belief model, based on psychological theory; (c) economic models of the demand for medical care; and (d) the behavioural model of health services utilization of health care services (*Aday & Andersen, 2014*). This study is seeking to determine factors associated with oral health care utilization among pregnant women in Kenya. As such, the study will borrow from the Andersen and Newman health service utilization model. According to Aday & Andersen, 2014, this is arguably the most comprehensive and widely applied model in health services research focusing on access to and use of health care services.

2.3.1. THE HEALTH SERVICE UTILIZATION MODEL

According to the health service utilization model, a pregnant woman's access to and usage of oral health services is as a result of three characteristics (*Andersen, 1995*). The first characteristic is predisposing factors. These are the socio-cultural characteristics of an individual that are present before the disease occurs. In the current study, the predisposing factors include age, education level, marital status, and other socio-cultural beliefs of the pregnant woman. The second characteristic is enabling factors. These factors are associated with the means and knowledge

which determine an individual's access to health services. In the current study, they include residence, means of transport to the health facility, level of income of the pregnant woman, distance to the health facility, and waiting time at the dental clinic. The need factors are the final characteristic postulated by the model. These are the most immediate cause of health service utilization. They create a necessity to acquire services from the healthcare systems. "Perceived need will facilitate an understanding of care-seeking and adherence to a medical routine. Evaluated needs will be linked to the kind and amount of treatment that will be provided after a patient has presented to a medical care provider" (Andersen, 1995). From the current study, reasons for use of oral health services, hindrances to the use of oral health services, and treatment received by those that sought oral health services are documented.

2.3.2. CONCEPTUAL FRAMEWORK

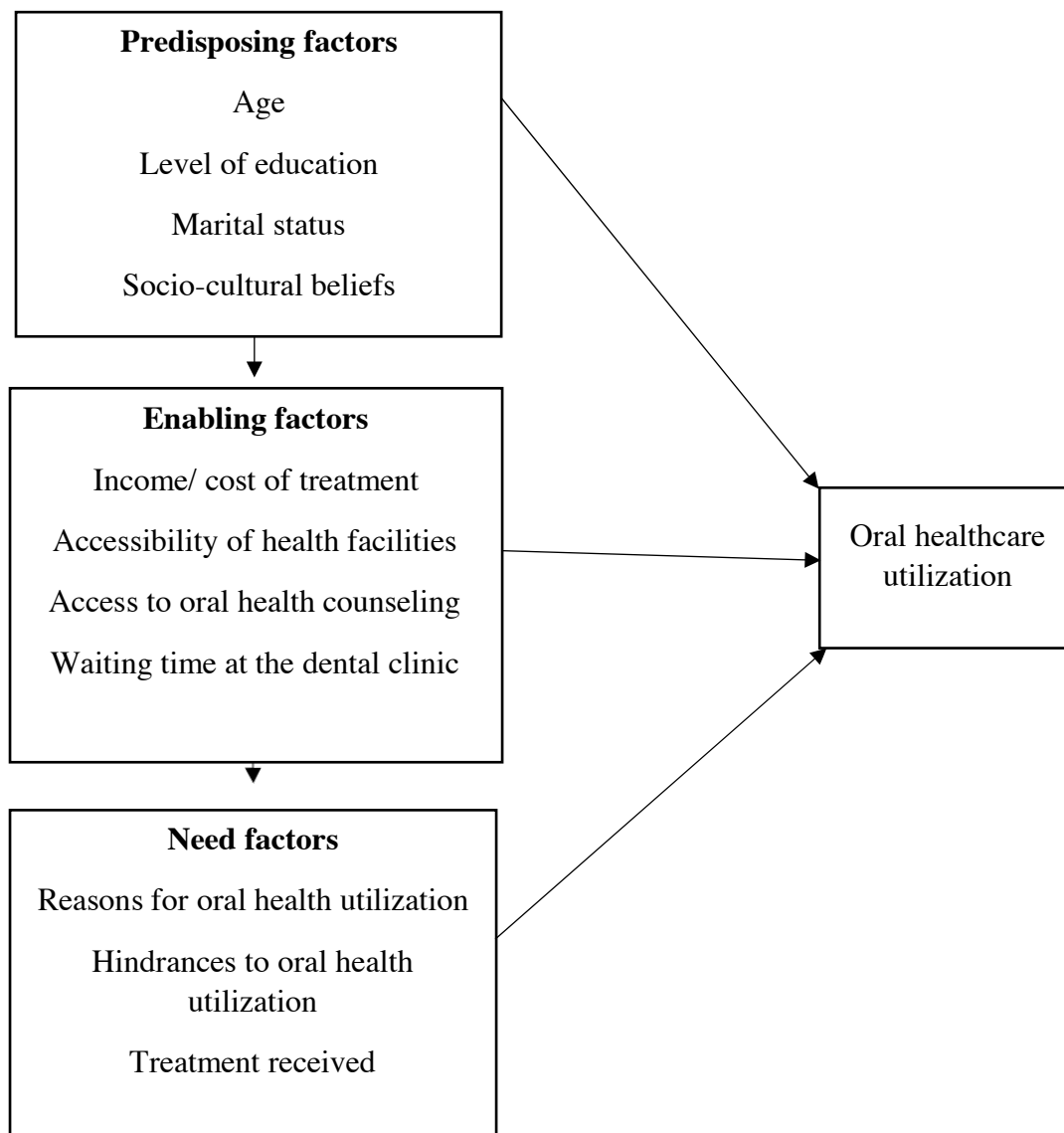
Figure 1 below presents a conceptual framework for utilization of oral health care by pregnant women. Oral health care utilization is the main outcome of an individual's health seeking behaviour. Utilization is associated with predisposing factors, enabling factors, and need factors. As explained in the Andersen model of predicting health care usage, predisposing factors, enabling factors or even need factors could on their own influence utilization.

Predisposing factors could however be amplified by enablers in health care utilization to shape the pattern of utilization. As depicted in figure 1 below, the utilization could further be influenced by the need factors which are related to the assessed need for the services.

In this study, age, level of education, marital status, and socio-cultural beliefs were considered predisposing factors. Income level, cost of treatment, accessibility of health facilities, access

to oral health counselling and waiting time at the dental clinic were reported by the pregnant women as enabling factors. Reasons for oral health utilization, hindrances to oral health utilization, and treatment received were include as need factors.

FIGURE 1: CONCEPTUAL FRAMEWORK FOR UTILIZATION OF ORAL HEALTH CARE AMONG PREGNANT WOMEN



CHAPTER THREE

RESEARCH METHODOLOGY

3.1. INTRODUCTION

This chapter highlights the study design, study area, target population, sampling procedure, data collection, data analysis, and ethical considerations. This study applied a quantitative approach.

3.2. STUDY DESIGN

This was a hospital-based quantitative cross-sectional study. This design was selected as it is ideal for describing and quantifying the distribution of various socio-demographic characteristics, behaviour and practices of a given group of people in a study population at one point in time (*Alexander et al., 2015*).

3.3. STUDY AREA

The study was conducted at Kiambu Level v Hospital, in Kiambu County. Kiambu County is located in Central Kenya. It borders Murang'a County to the North, Machakos County to the East, Nairobi and Kajiado County to the south, Nakuru County to the west and Nyandarua County to the North West. Kiambu County consists of 13 sub-counties namely, Kiambu, Kiambaa, Githunguri, Lari, Kikuyu, Gatundu North, Gatundu South, Juja, Thika East, Thika West, Kabete, Limuru and Ruiru.

Kiambu County is the second most populous county in Kenya, with a total population of approximately 2,417,735 persons. It covers a surface area of 2538.6 Km² with the density of people per km² being 952 (*KNBS, 2019*). It has a total of 308 health facilities.

Kiambu level v hospital is among the county's public health amenities. The Hospital offers a wide spectrum of health services, including maternity services, where my focus for this study lay. The maternity unit provides ante-natal, skilled delivery and post-natal services. According to data from Kiambu Level v, it is estimated that the facility will have a total of 3,978 pregnant women attending ANC clinic in 2020. The ANC clinic tends to serve approximately 300 pregnant women

per month (KNBS, 2019). A multi-professional team composed of nurses, midwives, clinical officers and medical officers offer health services in the department. The facility also has a dental outpatient clinic, which offers preventative, curative, emergency treatment, minor oral surgeries and prosthetic rehabilitation. The oral health professionals include dentists, COHO's and dental technicians. The facility was selected because it is a level v hospital, has a MCH facility, a dental outpatient clinic and has a high turnover of pregnant women visiting the ANC clinic. However, anecdotal data show the number of pregnant women utilizing the oral health service is low. Therefore, Kiambu Level v hospital provides credible information about the study population.

3.4. STUDY POPULATION

The study population was pregnant women seeking ANC services at Kiambu level v hospital, Kiambu County.

3.5. INCLUSION AND EXCLUSION CRITERIA.

3.5.1. INCLUSION CRITERIA

This included pregnant women 18 years and above who gave informed consent to participate in the study.

3.5.2. EXCLUSION CRITERIA

The study excluded pregnant women who did not give informed consent to join in the study and pregnant women under 18 years of age.

3.6 SAMPLE SIZE DETERMINATION

Fischer's formula is used in the determination of the sample size since the population of the County is higher than 10,000(Fisher *et al.*, 2014).

$$n = \frac{z^2 \times (p) \times (1 - p)}{c^2}$$

Where:

Z=the standard normal deviate that provides a 95% confidence level of (1.96)

(p)= estimated proportion of mothers utilizing oral healthcare (0.318 will be used, a prevalence from a Tanzanian study (*Mwangosi et al.*,2012).

c=absolute precision (error bound) set at 0.05

$$n = \frac{1.96^2 \times (0.318) \times (1 - 0.318)}{0.05^2} = 333.3$$

However, since the expected number of pregnant women in Kiambu County referral hospital is 3978, I adjusted the above sample size as calculated below.

$$\begin{aligned}nf &= n/(1+ (n/N)) \\ &= 333.3/ (1+ 333.3/3978) \\ &= 333.3/1.083785 \\ n &= 307.5\end{aligned}$$

3.7 SAMPLING PROCEDURE

A systematic random sampling method was used to select the study sample. Based on the annual estimate of pregnant women that attend Kiambu Level v hospital, which was 3978 women, and a data collection period of 2 months, the sampling frame for the study comprised of approximately 663 pregnant women. Using a sampling interval of 2 (i.e., 663/308), the first eligible study subject was randomly selected, and thereafter, every 2nd pregnant mother attending the ANC clinic, was recruited into the study until the required sample size was attained.

3.8 STUDY VARIABLES

TABLE 2: STUDY VARIABLES

Study variable	Description of the variable	Unit of measure	Statistical test.
Oral healthcare utilization among pregnant women	This is the outcome variable of interest. It was being measured as whether the pregnant woman had visited a dental clinic in their current pregnancy	Numbers and percentages	Chi-square
Age of the mother	Number of years as at last birthday	Years	Chi-square
Parity	The number of times the woman had been pregnant.	1 st pregnancy, 2 nd pregnancy or others	Chi-square
Marital status	Described as whether a woman has a spouse or not.	Measured as either single or married.	Chi-square
Education	This was captured as the highest level of education attained by the pregnant woman	Level of education Primary, secondary or tertiary	Chi-square

Religion	Women asked if they had a particular system of faith or worship.	Catholic, protestant, Islam, orthodox or no religion	Chi-square
Employment	What the pregnant woman is engaged in for purposes of generating income.	Formal, informal or unemployed	Chi-square
Level of income	How much the household income of the pregnant woman was.	Measured in Kshs	Chi-square
Area of residence	Captured as where the pregnant woman lives	Measured as either rural or urban	Chi-square
Distance	Distance covered by the pregnant woman to the hospital	Measured in kilometres	Chi-square
Transport means	How the pregnant woman got to the hospital.	Public, private, motorbikes, walking	Chi-square
Access to oral health counselling	This was captured as receiving (or not receiving) any form of oral health education during ANC clinics.	Measured as Yes or No	Chi-square

The attitude of oral health care providers	Rated based on how the pregnant woman was treated by the healthcare provider.	Measured in a scale of very good, good, average, poor or very poor.	Chi-square
The time it takes to be served at the dental clinic	How long it took before being attended to.	Measured in minutes	Chi-square
Level of satisfaction with dental services offered	Pregnant women were asked if they were satisfied with treatment given.	Measured as yes or no	Chi-square
Socio cultural beliefs	Women were asked to tick any cultural beliefs or practices that influenced their oral health utilization	Measured as yes or no	Chi-square

3.9 DATA COLLECTION PROCEDURE

Data was collected using an interviewer-administered semi-structured questionnaire by the principal investigator, with the help of a trained research assistant.

3.10 DATA MANAGEMENT AND ANALYSIS

The responses from the completed questionnaires were captured into an Excel sheet for authentication and cleaning. Thereafter, the clean dataset was exported to SPSS software version 25 for analysis. Descriptive statistics was done using frequency tabulation for categorical variables while continuous variables were summarized by means and standard deviation.

Univariable binary logistic regression analysis was carried out to evaluate the effect of each independent variable on oral health care utilization. The statistical significance was set at a liberal P - value less than 0.20 ($p < 0.20$) (Dohoo *et al.*, 2012). The crude odds ratio and P-value results obtained from the univariable analysis may not demonstrate the exact influence the independent variables have on the dependent variables.

Significant variables in the univariable analysis (all variables with P value less than 0.20 - 20%) were included in the multivariable model to evaluate the exact effect of each independent variable on oral health utilization by controlling the effects of other intervening variables. Statistical significance was set at P- value less than 0.05 ($P < 0.05$)

In the multivariable logistic regression, a backward stepwise method was used to eliminate insignificant variables, if their p-value were > 0.05 until the final model was obtained. This end model incorporated the significant variables that affected oral healthcare utilization among pregnant women attending ANC clinics at Kiambu level v hospital.

3.11 QUALITY ASSURANCE MEASURES

Formulation of the research instrument was done in line with the research objectives and pertinent literature review on factors affecting oral health care utilization among pregnant women, guaranteeing validity of the instrument. The validity of the content was verified through a review of the research instrument by researchers' supervisors and the researcher.

3.12 ETHICAL CONSIDERATIONS

The researcher ensured adherence to ethical practices, guidelines, and procedures throughout the research process. Approval was sought from the County Government of Kiambu, Kiambu level v hospital and from the Kenyatta National Hospital University of Nairobi's Ethics and Research Committee (Ref: KNH-ERC/A/151) before initiating the study. The researcher explained the purpose of the study to the participants and guaranteed them confidentiality of the data collected. Informed consent was sought from the study participants after taking them through what the study

entailed and what was expected of them. Thereafter they signed the consent declaration form as a binding document for privacy and confidentiality before participation. No personal identifiers were recorded on the questionnaires, and standards of confidentiality were maintained throughout the course of the study. The completed questionnaires will be stored under lock and key in the researchers' office and will be destroyed after five years.

During all steps of the study, the study participants' rights, privacy, dignity, and safety were strictly respected and protected. They had the freedom to leave the study whenever they wished. This thesis is my original work and has not been submitted elsewhere for examination. Where other people's work or my work has been used, it has been properly acknowledged and referenced per the university of Nairobi's anti-plagiarism policy.

3.13 Study limitation

Data was collected at the height of the Covid-19 pandemic. During this period, health-seeking behaviour was greatly affected due to health intervention measures put by the government to prevent the spread of the disease (*Oluoch-Aridi et al., 2020*).

The study population was ANC mothers who were among the vulnerable groups during this period and consequently, they could have shied away from seeking oral health care services due to fear of contracting the disease, job losses, and restriction in movement, most only seeking emergency treatment (*Kotlar et al., 2021*).

Recommendation

More studies should be carried out after the pandemic to establish if there will be significant differences in numbers utilizing oral health care in pregnancy. A larger sample size and additional qualitative methods of data collection, for example, focus group discussion are highly recommended for such subsequent investigations.

CHAPTER FOUR: RESULTS

4.1 DESCRIPTIVE STATISTICS

4.1.1 Socio-Demographic Characteristics

The study targeted 308 pregnant women attending the ANC clinic at Kiambu level v hospital. Of the targeted pregnant women, 306(99.3%) participated in the study and were considered for subsequent analysis.

As indicated in Table 3, the respondents were aged between the ages of 18 and 45 years, with a mean age of 27.59 (SD+5.92) years. With regards to parity, 107(34.97%) women were in their first pregnancy, 95(31.05%) in their second pregnancy, and 104(33.99%) were in their 3rd or higher parity.

Most of the respondents 254(83.01%) were married. More than sixty percent of the respondents 197(64.4%) were protestants.

The study also found that approximately two thirds 186(60.78%) of the respondents had attained secondary education, 176(57.5%) were unemployed and 280(91.6%) were in the low socio-economic group earning a monthly income of KES23,670 and below. Concerning their area of residence, the majority of the respondents 183(59.80%) resided in an urban setup.

TABLE 3: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF STUDY PARTICIPANTS

(N=306)

Characteristics	Mean (SD)
Age (years)	27.59(5.92)
	Frequency n (%)
Parity 1 st pregnancy	107(35)

2 nd pregnancy	95(31.1)
3 rd and above	104(34)
Marital status	254(85)
Married	52(17)
Single	
Religion	
Catholics	98(132)
Protestants	197(64.4)
Islam	2(0.65)
Orthodox	8(2.6)
No religion	1(0.3)
Education level	
Primary	40(13.1)
Secondary	186(60.8)
Tertiary	80(26.1)
Employment status	
Employed	130(42.5%)
Unemployed	176(57.5)
Socio economic status	
23,670 KES and below	280(91.6)
23, 671 KES to 119,999	25(8.2)
120,000 and above	1(0.3)
Area of residence	
Rural	123(40.2)
Urban	183(59.8)

*SD Standard deviation

4.1.2 HEALTH SYSTEM-RELATED CHARACTERISTICS

In terms of health system-related characteristics of the respondents as shown in Table 4, 60(55.3%) of the respondents covered less than 10 kilometres to the health facility. The majority 242(79.1%) depended on public means of transport, 119(38.8%) spend less than 100 KES for bus fare with a mean of 143 (SD=167.8), while 231(75.5%) did not receive any oral health counselling during ANC clinic visits.

TABLE 4: HEALTH SYSTEMS-RELATED FACTORS AFFECTING ORAL HEALTH CARE UTILIZATION BY PREGNANT WOMEN (N=306)

Characteristics	Frequency n (%)
Distance to the health facility	
0-10 km	160(52.3%)
More than 10km	146(47.7%)
Means of transport	
Walking	45(14.7%)
Motorcycle	10(3.3%)
Public means	242(79.1%)
Private means	9(2.9%)
Access to oral health counselling	
Yes	75(24.5%)
No	231(75.5%)
	Mean (SD)
The fare to health facility (in KES)	
0	
1-100	143.01(167.8)
100-200	
More than 200	

4.1.3 SOCIO-CULTURAL BELIEFS OF THE RESPONDENTS

The study also sought to determine the cultural beliefs of pregnant women regarding oral- service utilization among pregnant women. Respondents were asked specific questions, and findings have been summarized in table 5 below. Most of the respondents 176(57.52%) did not have any belief or myth against seeking dental treatment during pregnancy. Of those who had some cultural beliefs or myths against dental treatment during pregnancy, a majority of 67(21.90%) believed that a tooth extraction causes abortion. Others believed that you lose a tooth with every pregnancy 19(6.21%), x-rays result in malformed babies 19(6.21%), traditional and herbal medicine is safer 13(4.25%) while 12(3.92%) of the respondents believed extraction of a tooth is losing a body part.

TABLE 5: SOCIO-CULTURAL BELIEFS AMONG THE RESPONDENTS VISITING THE ANC CLINIC IN KIAMBU

Cultural beliefs	Number(n)	Per centage (%)
Lose a tooth with every pregnancy	19	6.21
Extraction of a tooth causes abortion	67	21.90

Oral healthcare utilization was the outcome variable of interest. It is a binary outcome that was measured as yes (visit to the dentist) or no (not visited a dentist) during current pregnancy. Among the 306 respondents, only 24(7.8%) had visited the dentist in their current pregnancy. The reasons for the visits as summarized in table 6 were check-up, bleeding gums, teeth sensitivity, pain, swelling on the gums and cavities.

TABLE 6: REASONS FOR VISITING A DENTIST IN THE CURRENT PREGNANCY

Reasons	Number (n)	Percentage (%)
Pain	1	4.17
Bleeding gums	6	25.0
Swelling on gums	1	4.17
Cavities	1	4.17
General check up	13	54.17
Sensitivity	2	8.33

The results also showed that more than three-quarters, a total of 282 (92.2%) of the total number of respondents had not visited a dentist in their current pregnancy. When asked why they had not visited a dentist in their current pregnancy, (Table 7), 125(44.3%) cited oral health as not being a priority. Other reasons highlighted include safety concerns on treatment during pregnancy at 50(17.7%), treatment cost at 27(9.6%), time constraint at 15(5.3%) while 65(23.1) had no reason for not visiting a dentist during this current pregnancy.

TABLE 7: REASONS FOR NOT VISITING A DENTIST IN THE CURRENT PREGNANCY.

Reason	Number(n)	Percentage (%)
Safety concerns on treatment during pregnancy	50	17.73
Dental treatment cost	27	9.57
Time constraints	15	5.32
Oral health is not a priority.	125	44.33
None	65	23.05
Total	282	100

The study further sought to determine if there was any association between oral healthcare utilization and predictor variables. Among the socio-demographic variables, (Table 8) age ($p=0.003$), education ($p=0.01$) and parity (0.031) were significantly associated with oral healthcare utilization at $p \leq 0.05$.

TABLE 8: ASSOCIATION BETWEEN SOCIO-DEMOGRAPHIC FACTORS AND ORAL HEALTH CARE UTILIZATION AMONG PREGNANT WOMEN (N=306)

Variable	Utilization of dental care services		χ^2	p-value
	Yes n(%)	No n(%)		
Predictor Variables				
Age groups				
18-22	1(0.3%)	72(23.5%)	$\chi^2=16.084^*$	p=0.003*
23-27	9(2.9%)	77(25.1%)		
28-32	3(1%)	83(27.1%)		
33-37	8(2.6%)	37(12.1%)		
>37	3(1%)	13(4.2%)		
Marital status				
Married	20(6.5%)	234(76.5%)	$\chi^2=0.002$	p=1.0
Single	4(1.3%)	48(15.7%)		
Education levels				
Primary	8(2.6%)	32(10.5%)	$\chi^2=13.75$	p=0.01
Secondary	7(2.3%)	176(57.5)		
Tertiary	9 (2.9%)	71(23.2%)		
Parity				
1st	5(1.6%)	102(33.3%)	$\chi^2=6.905$	p=0.031
2nd	5(1.6%)	90(29.4%)		
3 rd and above	14(4.6%)	90(29.4%)		

Religion				
Catholic	9(2.9%)	89(29.1%)	$\chi^2=5.268^*$	p=0.281
Protestant	13(4.2)	184(60.1%)		
Islam	0(0%)	2(1%)		
Orthodox	2(1%)	6(2%)		
No religion	0(0%)	1(0.3%)		
Employment status				
Employed	13(4.2%)	117(38.2%)	$\chi^2=1.455$	p=0.228
unemployed	11(3.6%)	165(53.9%)		
Income				
Low income	22(7.2%)	218(71.2%)	$\chi^2=1.296^*$	p=0.732
Middle income	1(0.3%)	25(8.2%)		
High income	0(0%)	1(0.3%)		
Area of residence				
Rural	14(4.6%)	109(35.6%)	$\chi^2=3.564$	p= 0.081
Urban	10(3.3%)	173(56.5%)		

*P value based on fisher exact test

Among the health system-related factors (Table 9), only access to oral health counselling (p=0.000) demonstrated a statistically significant association with oral healthcare utilization at $p \leq 0.05$.

TABLE 9: HEALTH SYSTEM RELATED FACTORS AFFECTING ORAL HEALTH CARE UTILIZATION AMONG PREGNANT WOMEN (N=306)

Variable	Utilization of dental care services		χ^2	p-value
	Yes n(%)	No n(%)		
Predictor Variables				
Distance to health facility				
5 -10KM	14(4.6%)	146(4.8%)	$\chi^2=0.382$	p=0.671
More than 10 KM	10(3.3%)	136(44.4%)		
Fare to health facility (in KES)				
0	4(1.3%)	52(17%)	$\chi^2=2.212^*$	p=0.530
1-100	11(3.6%)	108(3.5%)		
100-200	4(1.3%)	81(2.6%)		
More than 200	5(1.6%)	41(13.4%)		
Transport means				
Walking	4(1.3%)	41(13.4%)	$\chi^2=2.655^*$	p=0.429
Motorcycle	2(0.7%)	18(5.9%)		
Public means	18(5.9%)	224(73.2)		
Private means	0(0%)	9(2.9%)		

Access to oral health counselling				
Yes	14(4.6%)	61(19.9%)	$\chi^2=16.102$	p=0.000
No	10(3.3%)	221(72.2%)		

*P value based on fisher exact test

Socio cultural factors showed a statistically significant association with oral healthcare utilization (p=0.008) at $p \leq 0.05$

TABLE 10: SOCIO-CULTURAL FACTORS AND ORAL HEALTH CARE UTILIZATION AMONG PREGNANT WOMEN (N=306)

Socio-cultural beliefs				
Yes	4(1.3%)	126(41.2%)	$\chi^2=7.104$	p=0.008
No	20(6.5%)	156(51%)		

4.2 LOGISTIC REGRESSION ANALYSIS

Based on the univariable logistic regression analysis, socio-demographic variables that were statistically associated with oral health care utilization among the pregnant women at $p \leq 0.20$ (Dohoo. et.al, 2012) were age: (OR:0.917; CI:0.856-0982; P=0.013), parity: (OR: 3.173 CI: 1.100-9.157 P=0.041) and level of education: (OR: 3.241 CI: 1.163-9.307 P=0.03) as shown in table 11.

TABLE 11: UNIVARIABLE LOGISTIC REGRESSION ANALYSIS FOR SOCIO-DEMOGRAPHIC VARIABLES STATISTICALLY ASSOCIATED WITH ORAL HEALTH CARE UTILIZATION AMONG THE PREGNANT WOMEN AT P ≤ 0.20

Characteristics	Crude odds ratio	95% CI		p-value
		Lower	upper	
Age (Years)				
18-22	0.937	0.213	4.074	0.017*
23-27	15.568	1.875	129.279	
28-32	1.850	0.660	5.181	
33-37	5.982	1.501	23.833	
>37	Ref			
Parity				
1 st pregnancy	3.173	1.100	9.157	0.041*
2 nd pregnancy	2.800	0.968	8.099	
3 rd and above	Ref			
Marital status				
Married	0.975	0.319	2.981	0.965
Single	ref			
Religion				
Religion	0.892	0.472	1.687	0.726
No religion	ref			
Education level				
Primary	0.507	0.179	1.434	0.03*
Secondary	3.241	1.163	9.307	
Tertiary	ref			

Employment status			
Employed	1.291	0.849-1.62	0.222
Unemployed	ref		
Socio economic status	2.506	0.335-18.744	0.371
Area of residence			
Rural	2.222	0.953-5.129	0.064
Urban	ref		

*Significant variable at $p < 0.20$

Based on the univariable logistic regression analysis, the health system-related variable that was statistically associated with oral health care utilization among these pregnant women at $p \leq 0.20$ (Dohoo et.al, 2012) was access to oral health counselling at ANC clinic: (OR:0.197; CI:0.083-0.466; $P=0.000$).

Characteristics	Crude odds ratio	95% CI		p-value
		Lower	Upper	
Distance				
0-10KM	1.304	0.560	3.034	0.538
▶ 10km				
Means of transport				
Walking	1.585	0.400	6.283	0.567
Motor bike	1.197	0.392	3.657	
Public means	2.470	0.629	9.693	
Private means	Ref			
Cost of transport	0.975	0.630	1.509	0.909

Access to oral health counselling			
Yes	0.197	0.083-0.466	0.000*
No			

*Significant variable at $p < 0.20$

Based on the univariable logistic regression analysis, the socio-cultural variable was statistically associated with oral health care utilization among the pregnant women at $p \leq 0.20$ (Dohoo et al, 2012) : (OR:4.038; CI:1.346-12.119; P=0.013).

Characteristics	Crude odds ratio	95% CI		p-value
		Lower-upper		
Cultural beliefs				
Yes	4.038	1.346-12.119		0.013*
No	ref			

*Significant variable at $p < 0.20$

The variables: age, parity, level of education, area of residence, access to oral health counselling and socio-cultural beliefs that were statistically associated with oral health care utilization in the univariable analysis with p -value < 0.2 were included in the multivariable logistic regression model.

In the multivariable model, table 12, only two variables: level of education and access to oral health counselling remained statistically significant predictors of oral healthcare utilization in this study at p -value of < 0.05 .

Pregnant women who had attained at least a secondary level of education were 3.31 times more likely to utilize oral healthcare services (AOR; 3.305; 95%CI:1.124-9.723; P=0.018) as compared with those that had attained primary or tertiary level of education controlling for age, parity, socio-cultural beliefs.

Pregnant women that had not accessed oral health counselling at ANC clinic were less likely to utilize oral healthcare services compared to those who had accessed counselling (AOR:0.284; CI:0.112-0.720; p=0.008) controlling for age, parity, socio-cultural beliefs and level of education.

TABLE 12: MULTIVARIABLE LOGISTIC REGRESSION ANALYSIS OF PREDICTORS OF ORAL HEALTHCARE UTILIZATION AMONG PREGNANT WOMEN (N 306)

Characteristics	Adjusted odds ratio	95% CI	p-value
		Lower-upper	
Level of education			
Primary	0.724	0.226-2.319	
Secondary	3.264	1.112-9.579	
Tertiary	Ref		0.023*
Access to oral health counselling			
Yes	0.288	0.114-0.725	0.008*
No	Ref		

*Significant variables at p values of 0.05

CHAPTER FIVE

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.1. DISCUSSION

Among the study participants, the ages were between 18 and 45 years, with a realized average age of 27.59 years. Concerning oral health care utilization by age, those aged between 23 - 27 years utilized the services better than the other age groups. Contrary to this, findings from a study in the USA indicated that a higher percentage of women aged 37 years and older utilized dental care more than their younger counterparts (*Grossa, 2018*). Similarly, Adeniyi et al. 2010, found that older women had utilized dental services more than their younger counterparts. In China, pregnant women who had not accessed dental services while pregnant were younger than older women (*Sun et al., 2014*). This utilization pattern by older women may imply an increased oral health knowledge with an increase in age. In terms of parity, most participants in their 3rd or higher parity utilized oral healthcare compared with the rest. This observation was in consonant with study findings by *Bashiru et al., (2014)*, that found that women with more than three children had visited a dentist during their current pregnancy.

Another study in Tanzania also reported that most pregnant women who had utilized dental services had three or more children (*Mwangosi et al., 2012*). The majority of the participants in this study were married (83%), with a higher number utilizing oral health care services than their single counterparts. This observation was in sync with findings from several studies that indicated that married women were more likely to seek dental care than single ones (*Corchuelo-Ojeda 2013*), *Singhal et al.,2014*). Married women utilizing dental services better than single ones could be due to moral and financial support the married women got from their partners (*Rocha et al., 2018*).

In the current study, a majority (60.8%) of the participants had attained secondary education. A study in Nigeria also found that most of the pregnant who participated in the study had at least secondary education (*Bashiru et al., 2014*). Concerning the socio-economic status, 91.6% of the participants were low-income earners, and the majority did not utilize oral health care services during pregnancy. Sun et al., 2014 stated that low-income pregnant women were less likely to have routine dental care than high-income ones. This finding could imply prioritizing other basic needs such as clothing and food over oral health.

Regarding socio-cultural beliefs and myths, pregnant women are often subject to misconceptions about their oral health when pregnant. These misconceptions are among the most significant barriers to dental care utilization. In the current study, pregnant women had different socio-cultural beliefs and myths regarding oral health care utilization during pregnancy. Fear of abortion following a dental extraction was one of the beliefs cited by the respondents. In sync with this were results from different studies that believed that dental extraction was related to abortion (*Rocha et al., 2018*).

Other reasons cited by respondents in the current study were; that extraction of a tooth was equivalent to losing a body part, while others believed traditional and herbal medicine was superior. These were consistent with results from studies that found that some pregnant mothers believe in traditional and herbal medicine, while others believe extraction of roots is losing a body organ (*Bahramian et al., 2018*). Most misconceptions are brought about by a lack of awareness on the significance of oral health during pregnancy and the safety of dental treatment during this period. There also exists the belief that poor oral health is a normal and acceptable consequence of pregnancy, as well as dental treatment during pregnancy, will bring harm to the foetus (*George et al., 2011*).

The level of oral healthcare uptake among the pregnant women in this study was 7.8%. A cross-sectional study in Sudan among pregnant women attending prenatal clinics reported a level of

oral healthcare uptake of 10.2% (*El-Mahdi Ibrahim et al., 2016*) while the prevalence of dental consultation in a similar study in Nigeria was 8.7% (*Adeniyi et al., 2010*). However, the level of oral healthcare utilization in this study is low compared to 24% among pregnant women in Egypt (*Mousa et al., 2019*), 27.9% among pregnant women in Nigeria (*Bashiru et al., 2014*), and 31.8% among pregnant women in Tanzania (*Mwangosi & Kiango, 2012*). The low utilization of oral healthcare services during pregnancy may imply that pregnant women are at risk of developing pregnancy-related oral health problems. A higher number of respondents in this study sought oral health care due to bleeding gums. This observation was similar to findings by an Australian study where the most common dental complaint that necessitated consultation was gingival bleeding. At variance with the above finding, are several studies that have reported toothache/pain as the most common dental complaint requiring dental consultation (*El-Mahdi Ibrahim et al., 2016, Hashim, 2012, Malkawi ZA et al, Adeniyi et al., 2012*).

While pain has been shown to be the main reason people seek dental treatment (*MOH, 2015, Grossa, 2018*), findings from the current study showed that only 4% of the respondents sought dental care due to pain. Most people believe extraction is the treatment of choice in Kenya following a toothache (*MOH, 2015*). There are also many socio-cultural beliefs around pregnancy and dental treatment. This belief makes a pregnant woman endure the pain by consciously avoiding oral health care use for fear of extraction. The main barrier to oral healthcare utilization among pregnant women in this study was that oral health was not a priority. Similar findings were reported by Chidozie Onduka et al. in a study done in Nigeria where a majority of the respondents did not seek dental care, mentioning that dental problems were not relevant to their pregnancy outcome.

In this study, factors that were independently associated with oral healthcare utilization among pregnant women attending the ANC clinic at Kiambu level v hospital were; Level of education and access to oral health counselling. In this study, the educational level was a significant predictor for oral healthcare utilization in the adjusted model ($p=0.023$). This result was in consonant with findings from a systematic review analysis study (*Grossa, 2018*). In the current study, pregnant women with a secondary level of education were three times more likely to utilize oral healthcare services (AOR: 3.264, CI: 1.112-9.579). Similarly, Thompson et al., 2013 noted that women who had undergone at least 12 years of formal education had significantly higher odds of receiving dental cleaning during pregnancy. This finding on the level of education could be attributed to an increase in general knowledge of oral health from pregnant women with a higher education level. A study done in India reported that women with lower levels of education were less likely to seek regular dental care (*Baskaradoss et al., 2020*). Contrary to the above finding, several studies implied that women's educational level was not a significant predictor of oral healthcare utilization during pregnancy (*Grossa, 2018*).

Access to oral health counselling during pregnancy was also statistically significantly associated ($p=0.008$) with oral healthcare utilization among pregnant women in this study. These findings suggest that participants who received oral health counselling were more likely to utilize oral healthcare services. From this study, pregnant women who had not accessed oral health counselling at the ANC clinic had lower odds of oral healthcare utilization (AOR:0.284; CI:0.112-0.720). In Kenya, this finding could be attributed to a lack of emphasis on oral health counselling as part of FANC. However, oral health information is contained in the mother- child booklet used in the MCH clinic. This lack of emphasis limits the number of women receiving oral health counselling and consequently affects oral health service utilization.

Contrary to the above finding, in countries where oral health counselling is mandatory and oral health education is part of the antenatal program, utilization is high (*Julián et al., 2014, Ruiz et*

al., 2019). Oral health education during the prenatal period increases mothers' knowledge and demystifies some of the beliefs a pregnant woman has on oral health care use during pregnancy. The increase in knowledge influences oral healthcare utilization. Receiving guidance on oral healthcare as part of antenatal care programs increases the odds of oral healthcare utilization by pregnant mothers (*Julián et al.*, 2014, *Ruiz et al.*, 2019).

A study done in Brazil among pregnant women reported that women who had received guidance to seek care had 40% higher odds of seeking dental care than those who had not received any guidance (*Julián et al.*, 2014). Similarly, another study in Cali, Columbia, found that women who had received information on oral health and dental care during prenatal visits were 5.7 times more likely to utilize oral health care during pregnancy (*Ruiz et al.*, 2019).

There was no statistically significant association between oral healthcare uptake and participants' demographic of age, parity, religion, SES, area of residence, and marital status. Age was not statistically significantly associated with oral healthcare utilization in this study. Contrary to this finding, two studies done in USA and China found that age was associated with dental care utilization. Similarly, a study done in Nigeria found a significant relationship between pregnant women's age and the utilization of dental care services (*Adeniyi AA et al*, 2010). Parity was also not independently associated with oral healthcare utilization among pregnant women in this study. This finding varied from results observed in a related systematic review study (*Rocha*, 2018). Income level was also not independently associated with oral healthcare utilization in this study. In sync with the above observation, results from a study by Saddki et al., 2010 did not show a statistically significant association between dental service utilization during pregnancy and income.

Contrary to this, some previous studies have found that income was a significant predictor of not reporting dental utilization during pregnancy (*Amin et al.*, 2014, *Corchuelo et al* 2014,

Marchi et al 2010, Kim A. Boggess, 2010). Low-income pregnant women were less likely to have routine dental care than high-income ones (*Sun et al., 2014*). In Cali, Columbia, findings from a study indicated a significant relationship between economic resources and dental care use. The low- income pregnant women were less likely to have routine dental care than high-income ones (*Julián et al., 2014*). Lack of prioritizing health care can be attributed to these women prioritizing basic needs (food, clothing, and shelter) over their oral health and overall health. Therefore, pregnant women with sufficient income tend to seek oral health services (*Chorongo et al., 2016, Grossa, 2018*).

Further, only access to oral health counselling was statistically significantly associated with oral healthcare utilization among the health system factors. Distance to the health facility, means of transport, and cost of transport were not statistically associated with oral health care utilization. However, these factors have influenced oral healthcare utilization elsewhere (*Grossa, 2018*). The accessibility of a health facility influences how patients acquire health services, with individuals living far experiencing barriers such as increased transport costs in accessing the facility (*Azodo et al., 2013, Mousa 2019*). One of the major factors that affect seeking dental services is the distance to the health facility (*Downe et al., 2017*). Conversely, individuals in urban areas are closer to health facilities; therefore, pregnant women cover a shorter distance to acquire health services (*Sealy et al., 2017*).

5.2. CONCLUSION

Based on the findings of this study, the following conclusions were made;

1. Very few pregnant women attending Kiambu level 4 hospital antenatal care clinics utilized oral health care.
2. There is a significant association between access to antenatal oral health counselling and oral health utilization.
3. There is a significant association between the level of education and oral healthcare utilization. Higher utilization was observed among those with a secondary level of education.

5.3. RECOMMENDATIONS

1. There is a need to include antenatal oral health microteaching in primary healthcare to improve oral health utilization among pregnant women. This oral health education should be available to all, irrespective of education level.
2. The study was conducted during the Covid-19 Pandemic, a follow up study to show if there will be any significant difference in numbers utilizing oral health care in pregnancy post Covid is recommended.
3. A larger sample size study and an additional qualitative method like focus group discussion highly recommended.

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APPENDICES

APPENDIX 1: PARTICIPANT INFORMATION AND CONSENT FORM

Title of Study:

Factors associated with oral healthcare utilization among pregnant women attending antenatal care clinics in Kiambu level v hospital, Kiambu County, Kenya.

Introduction:

I, Salome Wambui Kinyita, from The University of Nairobi am conducting a study on Oral Health uptake among Pregnant Women as part of my Master's degree and thus request for your support by agreeing to participate in this study. This consent form provides you with the information which you will use to decide whether to take part in the study or not. You are free to ask any questions on all concerns that pertain to the study, your rights as a volunteer, and other aspects that are unclear.

Once you agree to be part of the study you will be required to sign this form to acknowledge that you understood the purpose of the study and are willing to voluntarily participate in the study. You may also withdraw from the study at any time and refusal to participate will have no associated risks or consequences.

Purpose of the Study

The purpose of this study is to determine the oral healthcare uptake among pregnant women attending the antenatal clinic at Kiambu County Referral hospital, Kiambu County, Kenya. Participants will be interviewed on their oral health-seeking behaviour and the factors that influence their oral health-seeking behaviour.

If you decide to be a participant in this study

You will be interviewed in an environment where you feel pleased or comfortable answering questions. The interview will take approximately 15 minutes. We will request for your phone number to contact you if necessary, and this information will only be made available to individuals who are engaged in the study and no other individuals.

Risks, harms, and discomforts associated with the study

One potential risk is the loss of privacy as the paper can identify the individuals through their phone numbers. However, to minimize this risk, the questions will be kept in a locked cabinet to secure the participants' information.

Discomfort can be experienced when answering questions in the study, and as such, you can skip them if you do not want to answer. Additionally, we will also do everything to ensure that the exercise is privately done.

Following the recent outbreak of the COVID-19 pandemic, we will observe all the necessary measures to minimize the risk of transmission.

Benefits of the study

The information you provide will also be critical in better understanding the level of oral health uptake and factors that influence the uptake among pregnant women for improvement of oral health among this group.

Costs for participating in the study

There are no associated costs of participating in the study

Questions in the future

In the event that you have any questions in relation to participation in the study, you can contact the researcher through;

Telephone no. +254720103292

Email skinyita@yahoo.com

If you have any questions to do with your rights you can contact the chairperson, KNH-UON ERC on:

Telephone no +2542726300-19

Emailuonknh_erc@uonbi.ac.ke

CONSENT FORM (STATEMENT OF CONSENT)

Participant's statement

I have read this consent form or had the information read to me and I had the chance to ask questions that have been answered in a language that I understand. The risks and benefits of participation in this study have also been explained to me. I understand that participation in this study is voluntary and I have the right to withdraw from the study at any time without any consequence. I willingly agree to participate in the study.

I also understand that all my information will be kept confidential and by signing this consent form, I am not giving up any legal rights that I have as a respondent in the study.

I agree to participate in this research study: Yes No

I agree to provide contact information for follow-up: Yes No

Participant signature / Thumb stamp _____ Date _____

Researcher's statement

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has willingly and freely given his/her consent.

Researcher's Name: _____ Date: _____

Signature _____

Role in the study: _____ [i.e. study staff who explained informed consent form.]

For more information contact _____ at _____ from
_____ to _____

MAELEZO YA WANAOSHIRIKI UTAFITI NA FOMU YA IDHINI

Utangulizi:

Mimi, Salome Wambui Kinyita, kutoka Chuo Kikuu cha Nairobi nafanya utafiti kuhusu matumizi ya huduma za afya ya mdomo kati ya wanawake wajawazito kama sehemu ya Shahada ya uzamili wangu na kwa hivyo ninaomba msaada wako kwa kukubali kushiriki katika utafiti huu. Fomu hii ya idhini inakupa habari ambayo utatumia kuamua iwapo ungependa kushiriki katika utafiti huu, au la. Uko huru kuuliza maswali yoyote juu ya wasiwasi wowote unaohusu utafiti huu, haki zako kama mhusika wa kujitolea na mambo mengine ambayo wewe mwenyewe hujayaelewa.

Mara tu ukikubali kuwa mhusika wa huu utafiti, utahitajika kusaini fomu hii kukiri kwamba umeelewa madhumuni ya utafiti na uko tayari kushiriki kwa hiari yako katika utafiti. Unaweza pia kujiondoa kwa shughuli hii wakati wowote ule, na kukataa kwako kushiriki hakutakuwa na athari au matokeo yoyote yasiyofaa.

Kusudi la Utafiti

Madhumuni ya utafiti huu ni kujulisha kiwango na hali ya utaftaji wa huduma ya afya ya mdomo kati ya wanawake wajawazito wanaohudhuria kliniki ya ujauzito katika hospitali ya rufaa ya kaunti ya Kiambu, Kenya. Washiriki wataulizwa kuhusu tabia yao ya kutafuta afya ya mdomo na sababu zinazoshawishi tabia yao.

Ikiwa umekubali kuwa mshiriki katika utafiti huu

Utahojiwa katika mazingira yanayokufariji, ambapo utakuwa na urahisi wa kujibu maswali.

Mahojiano yatachukua takriban dakika 15. Tutakuomba pia nambari yako ya simu ili kutuwezesha kuwasiliana nawe. Kulinda haki yako ya faragha, nambari hii na habari zingine

zote zitakazokusanywa katika utafiti huu zinaruhusiwa tu kwa watu wanaojishughulisha na utafiti huu, peke yao.

Hatari, athari na usumbufu unaoweza kuhusika na utafiti

Hatari mojawapo ya kujihusisha katika utafiti huu ni uwezekano wa kupoteza faragha, kwani ujumbe na data zinazokusanywa zinaweza kubaini wahusika kupitia nambari zao za simu. Ili kupunguza uwezekano wa hili kutokea, makaratasi na data zote zingine zitawekwa kwenye kabati lililofungwa, ili kuzuia mtu yeyote tu kupata data faragha za wahusika.

Usumbufu unaweza kutokea wakati wa kujibu maswali ya utafiti huu. Iwapo unasumbuka kujibu swali lolote, una haki ya kususia kulijibu hilo swali . Tutafanya kadri ya uwezo wetu kuhakikisha kuwa zoezi hilo la ukusanyaji wa data linafanywa kwa faragha.

Faida za utafiti

Habari unayopeana pia itakuwa muhimu katika kuelewa vizuri kiwango cha upeanaji wa afya ya mdomo na sababu zinazoathiri utaftaji kati ya wanawake wajawazito kwa uboreshaji wa afya ya mdomo kati ya kundi hili.

Gharama za kushiriki katika utafiti

Hakuna gharama zozote kwako mhusika, zinazoambatana na kushiriki katika utafiti huu.

Uwezekano wa Maswali ya siku zijazo

Iwapo una maswali au masuala yoyote kuhusiana na kushiriki katika utafiti huu katika siku zijazo, unaweza kuwasiliana na mtafiti kupitia;

Nambari ya Simu. +254720103292

Au kupitia barua pepe kwa skinyita@yahoo.com

Ikiwa una maswali, au masuala yoyote kuhusiana na haki zako kama mhusika wa shughuli hii unaweza kuwasiliana na mwenyekiti, KNH-UON ERC kwa:

Nambari ya Simu + 2542726300-19

Au kupitia barua pepe kwa uonknh_erc@uonbi.ac.ke

FOMU YA IDHINI (MAELEZO YA MAKUBALIANO)

Taarifa ya Mshiriki

Nimesoma fomu hii ya idhini au habari hiyo nimesomewa, na nilikuwa na nafasi ya kuuliza maswali na yamejibiwa kwa lugha ninayoielewa. Hatari na faida za kushiriki katika utafiti huu pia nimeelezwa. Ninaelewa kuwa kushiriki katika utafiti huu ni kwa hiari yangu binafsi, na nina haki ya kujitoa kwenye utafiti huu wakati wowote bila uwezekano wa athari zozote. Nimekubali kushiriki katika utafiti.

Ninaelewa pia kuwa habari zangu zote zitatunzwa kwa siri na kwa kusaini fomu hii ya ridhaa, mimi sitoi haki yoyote ya kisheria kama muhusika katika utafiti huu.

Ninakubali kushiriki katika utafiti huu: Ndio_____Hapana_____

Ninakubali kutoa nambari ya simu na namna ya mawasiliano kwa kufanikisha maswali ya kufuatilia : Ndio_____Hapana_____

Saini ya mshiriki / muhuri wa kidole_____Tarehe _____

Tamko la mtafiti

Mimi, mtafiti mkuu, nimeelezea kikamilifu maelezo muhimu ya utafiti huu kwa mshiriki aliyetajwa hapo juu na ninaamini kwamba mshiriki ameelewa na ametoa ridhaa kwa hiari yake.

Jina la mtafiti: _____ Tarehe: _____

Sahihi _____

Jukumu katika somo: _____ [i.e. wafanyikazi wa utafiti ambao walielezea fomu ya ridhaa yenye habari.]

Kwa habari zaidi wasiliana na _____ saa _____

kutoka _____ hadi _____

APPENDIX 2: QUESTIONNAIRE

Instructions:

Kindly complete the questionnaire in full.

Tick the appropriate answer and write where required.

Questionnaire number (FOR OFFICIAL USE ONLY)

Survey information

Date and time

Date

Time

Interviewer ID

RESPONDENTS DEMOGRAPHIC INFORMATION

Age in years as last birthday _____ years

Marital status

Single

Married

Religion

Catholic

Protestant

Islam

Orthodox

No religion

Parity (how many times have you been pregnant?)

Once

Two times

Others, specify

Where do you live?

Rural

Urban

What is the highest level of education you have attained?

Primary

Secondary

Tertiary

What is your employment status

Formal employment

Informal employment

No employment

Kindly state your household monthly income (Kshs)

SECTION B: ORAL HEALTH CARE UTILIZATION

Have you visited a dentist during your current pregnancy?

Yes _____

No _____

If yes answer question 10, if no skip to question 12.

What prompted you to seek dental care services?

Pain

Bleeding gums

Swelling on gums

Bad breath

Cavities (holes in the teeth)

General check up

Others, please specify

What service did you receive at the dental clinic?

Consultation

Extraction (tooth removed)

Cleaning

Filling Referral

Others, please specify

What hinders you from seeking dental treatment?

Safety concerns on treatment during pregnancy

Dental treatment cost

Time constraints

Oral health is not a priority

Others, please specify

SECTION C: SOCIO CULTURAL FACTORS

What are some of the cultural beliefs that hinder you from seeking dental treatment during pregnancy?

You lose a tooth with every pregnancy

Extraction of a tooth causes abortion

x-rays result into a malformed baby

Extraction of tooth is losing a body part

Traditional and herbal medicine is safer

Others, specify

SECTION D: HEALTH SYSTEM RELATED FACTORS

What is the approximate distance you cover to get to this facility in kilometres?

5-10 km

More than 10 km

What means of transport do you use to get to the facility?

Walking

Motorcycle

Public means

Private means

Others (specify)

How much do you spend on transport to and from the facility?

_____KES

Do you have access to counselling service on importance of oral healthcare during pregnancy at antenatal care clinic? Yes _____ No _____

How would you rate the attitude of service providers?

Very poor

Poor

Average

Good

Very good

How long does it take to be served, on average?

Between 1-20 minutes

20-40 minutes

40-60 minutes

Over 1 hour

Are you satisfied with the quality of services offered?

Yes _____ No _____

Explain _____

DODOSO

Maagizo:

Tafadhali kamilisha dodoso hili kwa ukamilifu.

Weka alama kwa jibu sahihi na andika unapohitajika.

Nambari ya dodoso (KWA MATUMIZI RASMI PEKEE)

Habari ya uchunguzi

Tarehe na wakati

Tarehe

Wakati

Nambari ya kitambulisho ya mhojiwa

SEHEMU A: HABARI YA WANAHOJIWA

Umri _____ Miaka

Hali ya ndoa

Sijaolewa

Nimeolewa

Dini

Katoliki

Mprotestanti

Muislamu

Orthodox

Sina dini

Umekuwa mjamzito mara ngapi?

Mara moja

Mara mbili

Mengine, tatu

Unaishi wapi?

Kijijini

Mjini

Ni kiwango kipi cha elimu ulicho nacho?

Msingi

Sekondari

Chuo kikuu

Hali yako ya ajira ni ipi?

Ajira rasmi

Ajira isiyo rasmi

Sina ajira

Andika mapato yako ya kila mwezi (Kshs)

SEHEMU B: MATUMIZI YA MATIBABU YA MENO

Je, umemtembelea daktari wa meno wakati wa uja uzito huu?

Ndio _____

Hapana _____

Ikiwa ndio, jibu swali 10, kama hapana, jibu swali 12.

Ni nini kilichokufanya kutafuta huduma za kutibiwa meno?

Maumivu

Ufizi kutoa damu

Kuvimba ufizi

Harufu mbaya mdomoni

Mashimo kwenye meno

Kuangaliwa jumla

Mengine, taja

Ni huduma ipi uliyoipata katika kliniki ya meno?

Ushauri

Kung'olewa jino

Kuoshwa meno

Kujazwa

Nilitumwa kwa hospitali nyingine

Mengine (tafadhali taja)

Ni nini kinachokuzuia kutafuta matibabu ya meno

Masuala ya usalama wa matibabu wakati wa ujauzito

Gharama ya matibabu ya meno

Kukosa wakati

Afya ya mdomo sio kipaumbele

Mengine, taja

SEHEMU C: MAMBO YA KITAMADUNI NA MILA

Je, ni mila zipi za kitamaduni zinazokuzuia kutafuta matibabu ya meno wakati wa uja uzito?

SEHEMU D: MASWALA YANAYOHUSIANA NA MFUMO WA AFYA.

Ni takriban kilomita ngapi unazopita kufika hospitali hii?

5-10 km

Zaidi ya km 10

Unatumia njia ipi ya usafirishaji kufika hospitali hii?

Kutembea

Pikipiki

Magari ya umma

Gari la kibinafsi

Mengine, taja

Unatumia pesa ngapi kusafiri hadi hapa hospitalini?

Je, Unapata ushauri wowote kuhusu umuhimu wa afya ya mdomo wakati u mjamzito katika kliniki za utunzaji wa uja uzito?

Ndio _____ Hapana _____

Je, unaweza kupima kiwango cha utoaji huduma cha watoa huduma?

Duni sana

Duni

Wastani

Nzuri

Nzuri sana

Inachukua muda kiasi gani kabla ya kuhudumiwa?

Kati ya dakika 1-20

Dakika 20-40

Dakika 40-60

Zaidi ya saa moja

Je, umeridhika na ubora wa huduma unazozipata?

Ndio _____ Hapana _____

Tafadhali fafana