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SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

FACTORS INFLUENCING UTILIZATION OF ORAL HEALTHCARE SERVICES AMONG ADULT RESIDENTS IN THE KEEA DISTRICT.

BY

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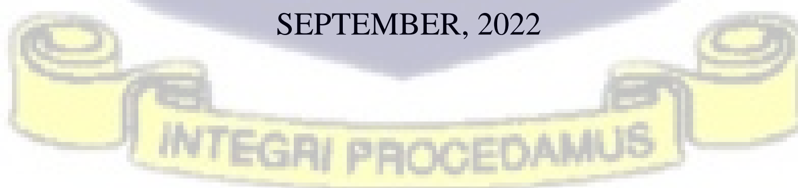
THIS DISSERTATION SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF PUBLIC HEALTH (MPH) DEGREE

SEPTEMBER, 2022



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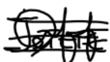
DECLARATION

I, Jennifer Tete, hereby declare that with the exception of referenced works of other people, which have been cited and duly acknowledged, this work is an output of my own initiative. This dissertation has neither in whole nor in part been presented for an award or a degree elsewhere.



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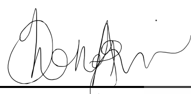

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DEDICATION

This research dissertation is dedicated to my husband, Mr Kwasi Boakye Darfoor and my mum, Miss Rebecca Larbi, for their immense support and encouragement during the period of my study.

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I am grateful to the Almighty God for His grace and mercies. I owe a great amount of gratitude to my supervisor, Dr Thelma Ohene-Agyei for the tremendous support and guidance, each step of this project.

Special thanks to the KEEA Municipal Assembly, Mr Andrews Asamoah and Mr Stephen Adom-Boateng for their contributions towards this dissertation.

God richly bless them all.

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ABSTRACT

Background: There is a crucial link between oral health and general health, as the mouth is the entry point to the digestive and respiratory systems, and as such poor conditions of the oral cavity can result in general ill-health. Accounting for a 64% increase in Disability-Adjusted Life Years over the past twenty-five years, oral diseases pose a serious public health challenge to policymakers.

Objective: The objective of this study was to assess factors influencing the utilization of oral healthcare services among adults living in the Komenda-Edina-Eguafo- Abirem District.

Methods: A cross-sectional quantitative study was conducted among adult residents in Elmina and Ankaful in the KEEA District. Multi-staged sampling approach with a simple random sampling technique was adopted to select participants. Data was analysed using STATA 16.0. Proportion of oral health utilization was computed with a 95% confidence interval. Test of association was conducted at both first and second levels. Test of association at first level was reported in chi-square. Crude and adjusted odds ratios were reported with 95% confidence intervals and statistical significance test set at $p < 0.05$.

Results: A total of 297 respondents participated in the study giving a response rate of 96.4%. The mean age of the participants was 34.8 ± 11.9 years. About 52% of the respondents were female. Awareness of an existing dental facility in the district was relatively high (77.8%) while 72.4% had visited the facility at least once. However, only 30.6% had utilized oral health services in the last one year. Utilization of oral health services was influenced by predisposing factors (age and marital status), need factors (fear of pain and use of traditional method/herbal) and enabling factors (distance to dental facility, waiting time at the facility and means of payment for oral health services).

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Conclusion: Despite the high number of people visiting the dental facility for at least one service, few followed up to acquire further services as recommended. Therefore, it is imperative for oral health workers to intensify campaigns on the need for a minimum of two dental visits per year per person as recommended.

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LIST OF ABBREVIATIONS

CHPS	-	Community Health and Planning Services
DALYs	-	Disability-Adjusted Life Years
GDA	-	Ghana Dental Association
GHS	-	Ghana Health Service
MOH	-	Ministry of Health
OPD	-	Out-Patients' Department
WHO	-	World Health Organization

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TABLE OF CONTENT

DECLARATION ii
DEDICATION iii
ACKNOWLEDGEMENT iv
ABSTRACT v
LIST OF ABBREVIATIONS vii
LIST OF TABLES xi
LIST OF FIGURES xii
DEFINITION OF TERMS xiii
1.1 Background to the Study 1
1.2 Statement of the Problem 3
1.3 Research Questions 5
1.4 Objectives of the study 5
1.4.1 General Objectives 5
1.4.2 Specific Objectives 5
1.5 Justification 6
1.6 Conceptual Framework 6
2.1 Introduction 9
2.2 Behavioural Model 9
2.3 Oral Healthcare Utilization 10
2.4. Proportion of Patients that access oral healthcare services 10
2.5 Factors that influence the Utilization of Oral Healthcare Services 11
2.5.2 Need Factors 15
2.5.3 Enabling Factors 16
3.1 Introduction 20
3.2 Study Design 20
3.3 Study Area 21
3.4 Study Population 23
3.4.1. Inclusion Criteria 23
3.4.2 Exclusion Criteria 23
3.5 Sampling Strategies 23
3.5.1 Sample Size Determination 23
3.5.2 Sampling Methods 24

INTEGRI PROCEDAMUS

University of Ghana http://ugspace.ug.edu.gh

3.6 Study Variables 26
3.6.1 Dependent Variables 26
3.6.2 Independent Variables 26
3.7 Data Collection 26
3.7.1 Data Collection Techniques 26
3.7.2 Data Collection Tools 26
3.8 Data Processing 27
3.9 Data Analysis 27
3.10 Quality control 28
3.10.1 Training of research assistants 28
3.10.2 Pretesting of questionnaire 29
3.11 Ethical Considerations 29
3.11.1 Ethical Clearance 29
3.11.2 Permission from Study Site 29
3.11.3 Participants' Consent 29
3.11.4 Risks and Benefits 30
3.11.5 Confidentiality and Anonymity 30
3.11.6 Voluntary Withdrawal 30
3.11.8 COVID-19 Protocols 30
3.11.9 Data Storage and Usage 31
3.11.10 Conflict of Interest 31
CHAPTER FOUR 32
RESULTS 32
4.1 Introduction 32
4.2 Socio-demographic characteristics 32
4.3 Awareness, knowledge and Utilization of Oral Health Services 34
4.4 Health service-related and other enabling factors for oral health services 36
4.5 Other patient-related factors on oral health service utilization 38
4.6 Bivariate analysis of socio-demographic factors and its association with oral health utilization 40
4.7 Bivariate analysis of health service factors and its association with oral health utilization 42
4.8 Bivariate analysis of relationship between other patient-related factors oral health utilization 44
4.9 Multivariate analysis of factors that are associated with oral health service utilization 45

University of Ghana http://ugspace.ug.edu.gh

CHAPTER FIVE 47
DISCUSSION 47
5.1 Introduction 47
5.2 Awareness and utilization of oral health services 47
5.3 Factors determining the utilization of oral health services 50
5.4 Strength and Limitations of the study 55
CHAPTER SIX 56
CONCLUSION AND RECOMMENDATION 56
6.1 Conclusion 56
6.2 Recommendations 56
REFERENCES 58
Appendix A: PARTICIPANT INFORMATION SHEET 65
Background and Purpose of Research 65
Nature of Research 65
Benefits of the Study 66
Risk of the Study 66
Confidentiality 66
Compensation 66
Withdrawal from the Study 67
Funding of Study 67
Provision of Information and Consent for participants 67
APPENDIX B: CONSENT FORM 68
PART I: PARTICIPANTS' CONSENT FORM 68
______ ______ ______ 68
APPENDIX C :INTERPRETERS' STATEMENT 69
APPENDIX D: DECLARATION BY WITNESS (IF PARTICIPANT CANNOT READ BY HIM/HERSELF) 70
______ ______ ______ 70
APPENDIX E: RESEARCHERS SIGNATURE COLUMN 71
APPENDIX F: QUESTIONNAIRE 72
APPENDIX G: ETHICAL CLEARANCE APPROVAL....79

University of Ghana http://ugspace.ug.edu.gh

LIST OF TABLES

Table 3.1: Estimation of Sample Size Distribution among the study communities 25

Table 4.1: Socio-demographic characteristics of the study participants...................................... 33

Table 4.2: Awareness, knowledge and utilization of oral health services 35

Table 4.3: Health service and other enabling factors for oral health use..................................... 37

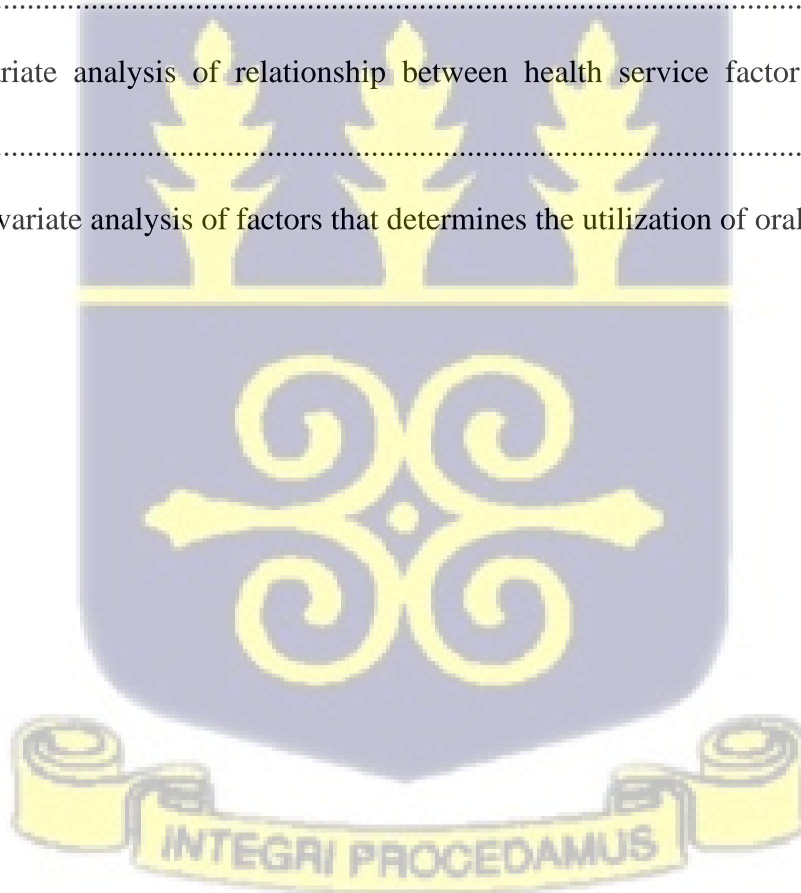
Table 4.4: Other patient-related factors 39

Table 4.5: Bivariate analysis of demographic factors and oral health utilization......................... 41

Table 4.6: Bivariate analysis of relationship between health service factors and oral health utilization 43

Table 4.7: Bivariate analysis of relationship between health service factors and oral health utilization 44

Table 4.8: Multivariate analysis of factors that determines the utilization of oral health services46



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LIST OF FIGURES

Figure 1.1: Conceptual framework of the study based on the Anderson Model 8

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DEFINITION OF TERMS

Accessibility: The quality of being able to be reached, easy to be used or obtained.

Apical Abscess: An infection characterized by a collection of pus at the root of teeth.

Bacterial Endocarditis: A bacterial infection of the inner layer of the heart or the heart valves.

Cavernous Sinus: A life threatening condition of the brain whereby a clot forms within a portion of it called the cavernous sinus. This can be triggered by infections of the face and paranasal sinuses.

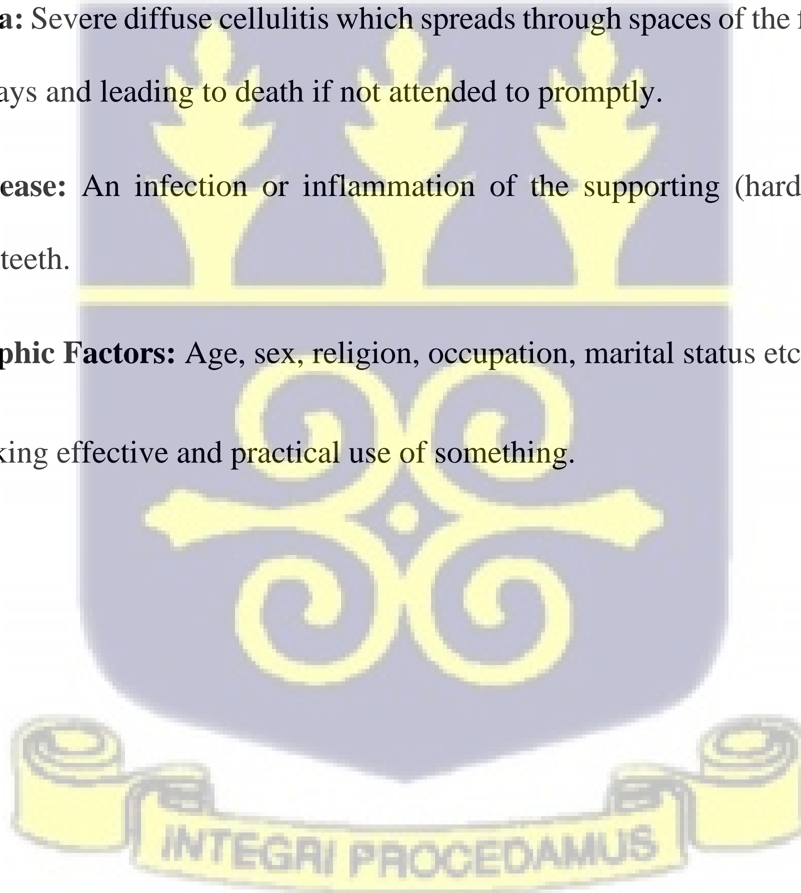
Dentistry: A branch of medicine that consists of the study, diagnosis, prevention and treatment of diseases, disorders and conditions of the oral cavity and its supporting structures.

Ludwig's angina: Severe diffuse cellulitis which spreads through spaces of the floor of the mouth, obstructing airways and leading to death if not attended to promptly.

Periodontal disease: An infection or inflammation of the supporting (hard and soft tissues) structures of the teeth.

Socio-Demographic Factors: Age, sex, religion, occupation, marital status etc.

Utilization: Making effective and practical use of something.



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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Oral health is defined as a state of being free from mouth and facial pain, oral diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking and psychosocial well-being. (WHO 2010). There is a crucial link between oral health and general health, as the mouth is the entry point to the digestive and respiratory systems, and as such poor conditions of the oral cavity can result in general ill-health. In both developed and developing countries, oral health remains a public health concern as it continues to impact all the determinants of good health. The most common oral conditions causing significant morbidity include dental caries commonly known as tooth decay, and periodontal (gum) diseases. These affect people of all ages. Oral diseases, such as caries and periodontal diseases, are not self-limiting. They progress and get worse over time. The burden of oral disease is particularly high for the disadvantaged and poor population groups in both developing and developed countries. In addition to poor living conditions, the major risk factors relate to unhealthy lifestyles (i.e., poor diet, nutrition and oral hygiene and use of tobacco and alcohol), and limited availability and accessibility of oral health services (Petersen et. al, 2005).

Lack of dental staff and personnel further augments the inadequacies of the oral healthcare sector in Ghana. The dentist-to-population ratio stands at 1:104,000 (GDA, 2018). Comprehensive oral healthcare is one that is aimed at providing preventive, promotive as well as curative and rehabilitative care to patients. However, in countries like Ghana where availability of and access to dental facilities are woefully inadequate, people tend to present when they require emergency care. Despite accessibility and availability challenges, another

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daunting challenge that attenuates Ghana's prospects in improving the oral healthcare status of its populace is inadequate utilization. Oral healthcare utilization refers to the actual process of patronage of oral healthcare services by the public. It mirrors the frequency of attendance made by the public annually or the number of people with at least one visit in the previous year. An idea of utilization patterns is key to developing effective policies. (Yaddanapalli et al., 2020).

Oral disease conditions remain a major public health challenge all over the world. (Kassebaum et al., 2017). According to The Global Burden of Disease Study, the number of untreated oral diseases and conditions rose from 2.5 billion to 3.5 billion worldwide, with caries of permanent teeth being the commonest and accounting for 2.3 billion out of the affected population. This rise accounted for a sixty-four percent (64%) increase in Disability-Adjusted Life Years (DALYs) stemming from oral diseases. This buttresses the point of reported high prevalence of oral diseases, posing a serious public health challenge to policymakers. Owing to urbanization trends and change in living conditions in low- and middle-income countries, the prevalence of oral diseases continues to increase. This may be as a result of consumption of foods high in sugars and inadequate fluoride exposure (Kassebaum et al., 2015). The increase in oral disease burden in developing countries is further complicated by the lack of resources and infrastructure to provide oral healthcare services. Other barriers include cost and patient's fear of dental procedures.

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The utilization of oral health services in Ghana, has been challenged by the absence of dental care services across certain parts of the country (Adusei, 2018). In most cases, the challenges differ from one place to the other. While majority of these challenges are associated with access

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to dental care services, others are also related to the healthcare workforce managing the available dental facilities (Adusei, 2018).

In Ghana, there are limited numbers of dental care facilities. The few that are available are concentrated in the regional capitals and a few districts. It is therefore difficult for people at the district levels to reach out to their dentist when in need of dental care. Knowledge about dental care is equally limited among the general populace, contributing to poor utilization. It is therefore important that emphasis is placed on the enablers and barriers of oral healthcare services in the country to address the persistent gap in utilization.

1.2 Statement of the Problem

The prevalence of oral diseases in Ghana, is significantly high among the general population with different cases of reported cavities. Blankson et al., (2021) in a study in Accra observed that about 49.7% of adult population are challenged with at least one form of oral health disease. Hewlett et al., (2022) in a similar study in Ghana had noted that about 40.4% of all adults and children had oral health problems but were not accessing oral health services. It was evident in that study that, despite the availability of dental clinics within the study district, there were limited visits to the facility by the population.

Oral health service utilization in Ghana is observed to be very poor. A study conducted by Okang & Sackeyfio (2011), revealed that only 20% of the population adequately access and utilize healthcare. This is in line with studies done in other parts of Africa such as Nigeria (Olaleye et al, 2013) and Lesotho where 60-70% of people accessing dental care present in advanced oral disease stages. (Lesotho Annual Joint Review, MOH 2009-2014). The issue of underutilization is even more augmented in rural communities in Ghana. The Dental Clinic in the KEEA district recorded 167 attendances in 2020. However, only 17.6% of this number were considered to have adequately utilized the oral healthcare services, measured with the

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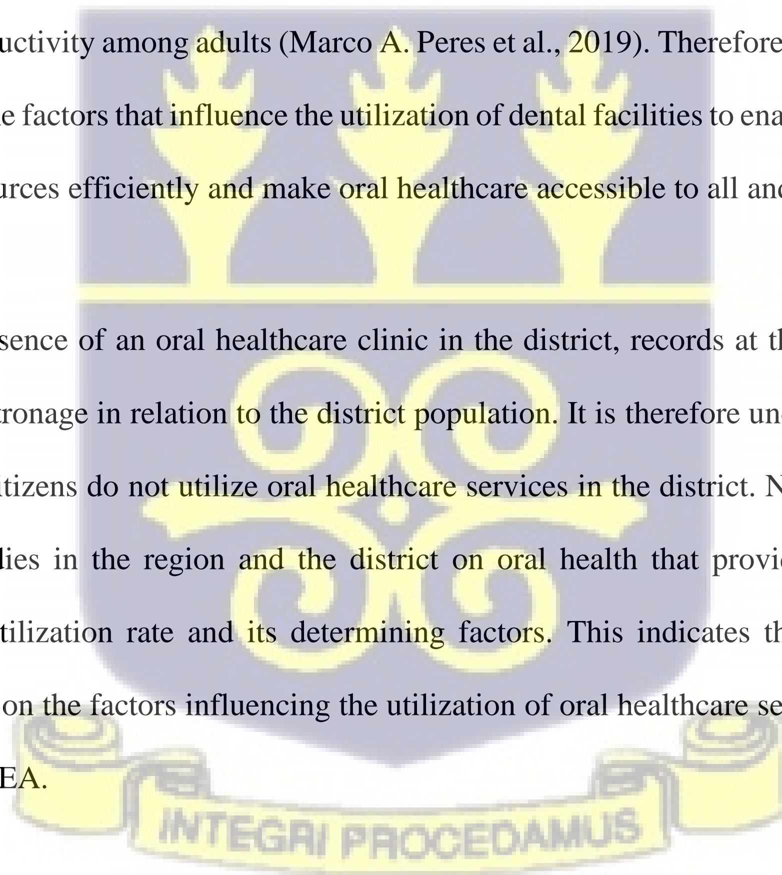
WHO standard of adequate utilization of oral healthcare services pegged at two or more visits. The half-year report in 2021 saw an increase in percentage of adequate utilization to 28% from the 132 attendances recorded. While this may be an improvement on the figures from the previous year, this proportion still remains low and in line with studies that highlight underutilization as observed in developing countries.

Oral diseases, especially those in the advanced stages, are associated with severe pain, facial deformities, reduced quality of life, life threatening conditions affecting the heart (bacterial endocarditis) and brain (cavernous sinus thrombosis) among others and even death. Oral diseases negatively impact the academic performances of children in school and reduces workplace productivity among adults (Marco A. Peres et al., 2019). Therefore, there is the need to understand the factors that influence the utilization of dental facilities to enable policymakers to channel resources efficiently and make oral healthcare accessible to all and sundry.



Despite the presence of an oral healthcare clinic in the district, records at the facility do not show a high patronage in relation to the district population. It is therefore unclear, the reasons for which the citizens do not utilize oral healthcare services in the district. Nonetheless, there equally no studies in the region and the district on oral health that provides the basis for assessing the utilization rate and its determining factors. This indicates the existence of a knowledge gap on the factors influencing the utilization of oral healthcare services among the residents of KEEA.

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1.3 Research Questions

1. What proportion of adults in the KEEA district know of the existence of the new dental facility in the district?
2. What is the proportion of adults in the KEEA district accessing and utilizing oral healthcare services adequately?
3. What patient-related factors influence adequate utilization of oral healthcare services in KEEA?
4. What are the health system and provider-related factors influencing patients' utilization of oral healthcare services in KEEA?

1.4 Objectives of the study

1.4.1 General Objectives

To assess factors influencing the utilization of oral healthcare services among adults living in the Komenda-Edina-Eguafo- Abirem District.

1.4.2 Specific Objectives

1. To determine the proportion of adult residents in the KEEA district, who are aware of the existence of a dental clinic in the district.
2. To determine the proportion of adults in the KEEA district who utilize the oral healthcare services adequately.
3. To assess patient-related factors influencing their utilization of oral healthcare services in KEEA.
4. To assess health system and provider-related factors influencing patients' utilization of oral healthcare services in KEEA.

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1.5 Justification

The only dental clinic in the KEEA district, located within the Elmina Polyclinic, was established in September 2019 and began full operations in January 2020. Since the commencement of operations, it has been recording low patronage of the various dental services. In 2020, the clinic recorded 167 new attendances. The low number recorded for the entire year could be attributed to the Coronavirus outbreak and the fact that it was the first year of operation. The first four months of 2021, saw the number of new attendances recorded (132). While it may seem as though there is a general increase in attendance, the increase is somewhat inadequate, considering that the facility caters to a population of approximately 166,000 people. The inadequate utilization of dental services is a matter of concern, as clients present later with fulminant disease conditions with poor prognosis. Therefore, it is essential to conduct this research, to assess the factors that influence the patronage and adequate utilization of dental services. This will act as a source of information for policy and decision makers as well as other health system stakeholders in effective planning and delivering of quality dental health services.

1.6 Conceptual Framework

The conceptual framework of the study adopted the theory from the Anderson-Newman model of health care utilization. The Anderson-Newman model of health care utilization (Andersen, 1995) presents a framework that allows for a critical review and identification of key factors that determines or influences an individual's stand on whether to utilize health care services or not. The determining factors have been categorized into three with diverse strands; predisposing, need and enabling factors. The predisposing factors explain the socio-cultural and demographic factors of an individual. Under this study, the predisposing factors that were

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considered included age, sex, educational level and occupation. Other disposing factors included marital status, religious affiliation and income level.

Need factors as explained in the model discusses the push factors that influence an individual to utilize health care services (i.e., oral health services). The push/need factors that were considered under the model as influencers to the utilization of oral health services in this study included the effect of oral health on an individual. Key of the variables considered included pain and speech discomfort.

The enabling factors under this discussion included factors of availability, accessibility and affordability of oral healthcare services and environmental conditions in healthcare facilities.

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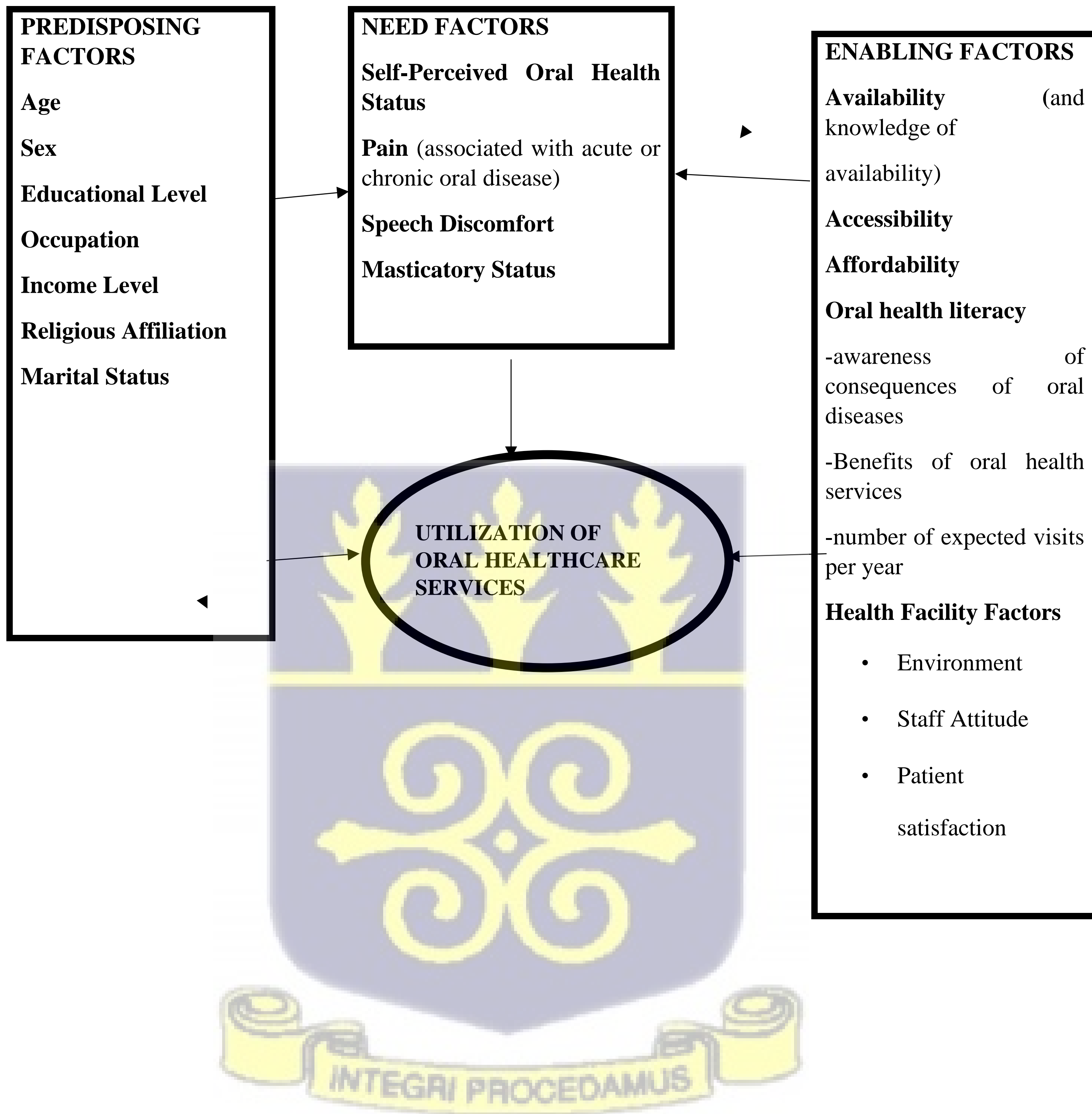
Figure 1.1: Conceptual framework of the study based on the Anderson Model



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CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter gives an insight into the concepts of utilization in different economic settings. It assesses various literature from studies conducted in relation to variables highlighted in the conceptual framework, focusing on the factors that affect oral health services utilization. These, according to the Andersen and Newman Behavioural Model (ANBM) for health service utilization are grouped into predisposing, enabling and need factors.

2.2 Behavioural Model

Attempts at explaining healthcare utilization have been made by several theoretical models such as the Dutton Model, the Evans and Stoddart Model, the Health Belief Model, the Grossman Model of Health Demand, and Andersen's Behavioural Model (Tan et al., 2021). The Andersen and Newman Behavioural Model was chosen for this study because; it categorizes and outlines the relationship between health and healthcare services utilization, taking into account areas such as sociology, psychology, economics, and medicine (Kim et al., 2020). The framework is considered a predictor model. According to the model, utilization of healthcare services is influenced by predisposing, enabling and need factors. Predisposing factors are factors that increase or decrease a person's chances of using healthcare services. They include demographic factors (age and sex) and social structures (occupation, income level, marital status, educational level). Enabling factors are resources that facilitate the usage of the healthcare services by the individuals, such as access, availability and affordability of the services. Need factors refer to the level and severity of injury or disease that motivate the use of healthcare services. These factors could either be subjective, that is, as perceived by the individual or elicited by a health professional.

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2.3 Oral Healthcare Utilization

Utilization of oral healthcare services is often used as a substitute measure for access to oral healthcare services (Adeniyi & Oyapero, 2020). The commonest index used in the assessment of oral healthcare utilization is the percentage or proportion of the population who have had at least one dental visit in the last year (Hariyani et al., 2020a). However, according to the WHO (2012), the optimum number of routine visits to the dental clinic by an otherwise healthy individual should be at least twice a year at 6-month intervals. This is critical to ensuring early detection of oral disease conditions that may be developing. The definition is therefore centred on the two visits to dental facilities at least twice in a year. Different populations, defined by different determinants such as geographical location, cultural norms and socioeconomic statuses among others, utilize oral healthcare services to varying degrees and for various reasons. Therefore, in order to improve oral health outcomes, it is essential for policymakers and other key stakeholders of oral health to obtain adequate knowledge of the way the individuals use oral healthcare services and the factors that predict their behaviour (Gambhir et al., 2013). Developed countries are more likely to utilize preventive oral healthcare services while developing countries lean more towards pain management and emergency services (Varenne et al., 2006).

2.4. Proportion of Patients that access oral healthcare services

The proportion of a population utilizing oral healthcare services, varies from country to country. In developed countries, oral healthcare services utilization is relatively higher with about 40–80% of the adults visiting a dentist in a given year (Hariyani et al., 2020b). In the United States, The Surgeons General Report for 2020 dubbed Healthy People 2020, revealed that between 2007 and 2016, there was no statistically significant change in the percentage utilization of oral healthcare services in persons over age two in the past 12 months. A

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percentage of 44.5% was recorded in 2007 and 43.3% in 2016, age adjusted. A study conducted among the elderly population in Sweden reported an 80% reach in access and utilization of dental services in the preceding 12 months of the study (Kronström et al., 2002). Developing countries, however, have records of low utilization potential of oral healthcare services. A study carried out in Lagos by Adeniyi & Oyapero (2020a), reported that 39.2% of the study population had ever visited the dentist, while only 10% visited the dentist in the preceding year. This can largely be attributed to factors such as low dentist-to-patient ratio and poor distribution of oral healthcare facilities with most of them being centred in and around urban and peri-urban dwellings. In a study by Tan et al., (2021) in Malaysia, it was revealed that oral healthcare utilization in the past 12 months was 13.2%. It further went on to compare this proportion with other Asian countries like Thailand which stood between 6.63%-8.81% and Indonesia which was 1.2%.

2.5 Factors that influence the Utilization of Oral Healthcare Services

This subsection discusses the factors that influence oral healthcare utilization as explained by the Anderson Behavioural Model namely the predisposing, enabling and need factors.

2.5.1 Predisposing Factors

Sociodemographic factors

Sociodemographic factors are considered essential determinants in addressing oral healthcare inequalities. Socioeconomic, as well as demographic backgrounds, differ in different parts of the world hence influencing oral healthcare utilization differently (Tan et al., 2021). Age, sex, educational level, occupation, income level religion and marital status are some of the commonest socio-demographic factors that influence utilization of oral healthcare services.

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Age

The relationship between age and oral healthcare services utilization cannot be downplayed. As people age, they become susceptible to chronic and acute infections. This is further compounded by a compromise in their immune systems. Published literature indicates an inverse relationship between increasing age and oral healthcare utilization (Ahmad et al., 2018). A study carried out by Tan et al., (2021), suggested that younger adults had higher odds of utilizing oral healthcare services compared to the elderly aged 60 years and above. The elderly have been found to utilize curative oral healthcare services more while preventive oral health services are patronized a bit more by young adults (Lo et al., 2001). Hamasha et al., (2019) conducted a study on the elderly population in Saudi Arabia and their barriers for obtaining dental services. The highest reported barrier identified, which accounted for 70.2% of the responses, was the lack of perceived dental need. Most of the respondents either felt that it was normal for ageing to be accompanied by some disabilities or just were not motivated to visit the dentist when they believed there was nothing wrong with their oral health. Another predominant barrier for the aged identified from this study was the unaffordability of such services, given that there were no special dental care plans for the aged. Most elderly people are not actively involved in any form of employment hence are not financially self-sufficient. Presence of disability, dental fear, transportation and location were all reported as barriers too.

Sex

Sex related disparities in oral health remain undervalued and are often missed as an integral aspect of general well-being by both healthcare workers and the general population. Just as men and women differ in various other aspects of human health, at specific life stages, the same applies for oral health. It is interesting to note that, although women possess innate pro-cariogenic physiologies, by virtue of a myriad of reproductive and hormonal changes occurring through the body including the oral cavity, studies have identified males as having poorer oral

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health compared to females (Branch-Elliman, 2012; Peres et al., 2007). It has been reported that women tend to emulate preventative oral health behaviours such as brushing and flossing more than men. Females often exhibit positive attitudes to dental visits and have higher oral literacy levels. Males tend to seek dental care for acute problems more than preventive interventions (Lipsky et al., 2021).

Educational Level

A cross sectional survey on factors influencing patients' utilization of dental health services in Saudi Arabia showed that the level of education an individual has significantly affects the use of oral health service (Quadri et al., 2018). According to the study, patients who had a higher education level were two times more likely to use oral health care services compared to those with no or lower educational background. They revealed that study participants prefer visiting the oral care centre for curative purposes rather than preventive care (Quadri et al., 2018). A study conducted in Iran on factors affecting demand and utilization of dental services also revealed similar results; educated Iranians were more likely to use dental services compared to their uneducated counterparts (Motlagh et al., 2019). Similarly, a comparative study on factors influencing the utilization of dental services in Indonesia showed that persons with lower educational backgrounds have a lesser likelihood of utilising oral health care services (Hariyani et al., 2021). Previous studies in Iran (Gholami et al., 2016) and among Korean Americans (Jang et al., 2014) also found a positive relationship between the educational status of household heads and the use of dental health care services.

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According to Jang et al. (2014), Korean Americans, who had higher than secondary education, were more likely to use dental health care services due to the fact that they possess higher socioeconomic power, better levels of knowledge and positive attitudes towards oral health and the importance of patronising dental health services compared to less educated persons.

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However, Linjewile–Marealle (2017) and Murakami et al. (2014) did not find any significant relationship between educational level and the use of oral health services among selected patients who took part in studies on oral health service utilisation in Lesotho and Japan respectively.

Employment Status and Income

A number of studies found employment status and income of the head of the household as important determinants of dental health care service utilization (Gholami et al., 2016; Motlagh et al., 2019; Uguru et al., 2021). According to Uguru et al. (2021), study participants who were self-employed professionals or worked in government agencies were found to make more visits to the dental clinic compared to those who were unemployed. They cited income from employment, increased awareness of oral health diseases and the advantage of having health insurance as reasons why the self-employed and the government workers had increased visits to a dental facility (Uguru et al., 2021). A previous study by Motlagh et al. (2019) also indicated that employed people have greater tendencies of seeking dental health services compared to their unemployed counterparts. According to Motlagh et al. (2019), household income showed a positive relationship with use of dental health care services, attributing this to the fact that people who have a source of income have a higher ability to utilise and pay for dental health care services.

Likewise, different authors (Gholami et al., 2016; Rezaei et al., 2016; Homaie Rad et al., 2016) also noted occupation as an important determinant of dental health care seeking behaviour in parts of Iran as employment provides insurance coverage making it easier to access and use oral health care services. Grytten et al. (2012) and Maharani & Rahardjo (2012) also noted significant positive correlation between the income and use of dental health care services among households in Norway and Indonesia respectively.

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Marital Status

Literature concerning the influence the marital status of individuals has on the use of dental health care services is scanty and mostly inconsistent. Obeidat et al. (2014) in their study noted that Jordanian adults who were married were more likely to be users of dental service than with respondents who were single. This, they attributed to the fact that unmarried respondents can use dental services for check-ups and prevention more frequently, because they have more available time or fewer responsibilities (Obeidat et al., 2014). However, Mariño & Giacaman (2017) in their paper on the patterns of use of oral health care services and barriers to dental care among Chilean adults found no significant association between marital status and utilisation of oral care services.

Religious Affiliation

Rumun (2014) reports that religious beliefs can cause patients to forego needed medical care, refuse life-saving procedures, and stop necessary medication, choosing faith instead of medicine (Rumun, 2014). Majority of the studies (Mirghafourvand et al., 2018; Menegazzo et al., 2018; Piovesan et al., 2017) encountered during this literature search focused on the role of religiosity on the oral health status of individuals and not on oral health care utilisation. They found out that persons who were more religious or took their religious practices seriously were more likely to have better oral health status and oral health related quality of life compared to those who did not take religion seriously (Mirghafourvand et al., 2018; Menegazzo et al., 2018; Piovesan et al., 2017).

2.5.2 Need Factors

The need factors that influence utilisation of dental care services are self- perceived oral health status, pain associated with acute or chronic oral disease and speech discomfort. The way an

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individual perceives the state of his or her oral health has been found to influence their visits to the dental care facility. According to Jiang et al. (2005) Chinese adolescents who had positive self-perception about the state of their oral health were more likely to use dental health care services. They noted that if individuals perceive positive thoughts about their oral health, they are likely to find ways to maintain or improve it by utilising oral health care services compared to those who self-perceive poor oral health status. In 2014, Bright et al. also captured the importance of self-perceived oral health in influencing oral health behaviour and practices. de Palma et al. (2016) and Piovesan et al. (2011) also agree stating that the perception of oral health may influence oral health decisions and healthcare utilization patterns. In their study, dental visits were associated with self-perceived status of the teeth where students with good or excellent self-perceived status of their teeth are more likely to have regular dental visits (de Palma et al., 2016). A number of researchers have noted that people do not see the need of visiting the oral healthcare centre unless they have dental pain or problems relating to speech or eating. Reports from Ouagadougou showed visits to dental health care facilities are mostly due to symptomatic dental problems that affected their day-to-day activities. When queried, participants saw no reason in visiting the oral health centre if they do not perceive any problem with their dental health (Varenne et al., 2006).

Linjewile–Marealle (2017) also observed this emphasising that even with mild symptoms people prefer to self - medicate or consult herbalists and would only go to the oral health care centre if the situation worsened, mostly presenting with advanced stages that require extraction.

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2.5.3 Enabling Factors

The health facility environment, availability, accessibility and affordability of services affect patient utilisation of oral health services. The distance to the oral health care facility greatly impacts use of the facility by patients. According to Masiga (2017), patients were most likely

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to make use of oral health services if the location of the facility is closer to their homes. Hence if the facility was far away it will be difficult for them to patronise it routinely unless in the case of an emergency. Long travel time, transportation cost as well as the disruption of their day to day or economic activities were top reasons why they will not patronise a facility far away from their homes (Masiga, 2017). Shubayr et al. (2021) also reported the location of services and the lack of dental providers as accessibility barriers to oral health care services in Saudi Arabia. They also noted long waiting hours, late opening time, poor sanitary conditions and poor service quality, poor awareness creation on dental health, expensive user cost, cost of care and the unavailability of professionals as reasons why majority preferred the private facilities to the public ones (Masiga, 2017). Kadaluru et al. (2012) also cites the high cost of dental health services as a barrier to accessing care. They stated that even in cases where the government or insurance companies paid subsidies for treatment, the subsidies only cover simple procedures and not complex ones, discouraging visits to the oral care centres (Kadaluru et al., 2012).

Oral health literacy encompasses knowing the benefits of patronising oral health services, the consequences of oral diseases as well as the appropriate dental health behaviour pertaining to visits to the dental care facility. According to the Oral Health Foundation (2021), patronising oral care services can help individuals quickly identify and reduce the risk of dental decay and gum disease – both of which can result in tooth loss and a reduction in lifespan. Dental visits also help in early detection of oral cancer for timely management (Oral Health Foundation, 2021). A clinic-based pilot study by Al-Ansari (2016) among a group of adults in Saudi Arabia showed that people who were aware or had education on issues and benefits of dental health practices were more likely to practise them compared to those who did not have any knowledge on oral health. However, they noted that there was a high level of knowledge among

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respondents on how to prevent oral diseases but this awareness did not translate into actual use as practice scores were lower than knowledge scores (Al-Ansari, 2016). Similarly, Ofili et al. (2020) also noted that the utilization rate of oral health services did not match up to the level of awareness people in Nigeria had concerning the existence and benefits of patronising these services. Recommendations on the number of expected visits to the dental care centre per year remain inconclusive as well as inconsistent.

Clinicians and academicians are unable to determine how much time gap is needed between each dental visit. Some recommend a one year or six- month time gap between visits while others recommend that check-ups should be based on individual patients' risk (Quadri et al., 2018). Staff attitude and patient satisfaction are two key elements that have been reported to determine a patient's decision to visit, revisit or never visit a health care service (Woo & Choi, 2021). Studies by Quadri and colleagues (2018) revealed that a bad experience with an oral health care provider in the past poses a significant barrier to dental service utilization. The largest contributing factor according to Quadri et al. (2018) was "dental instructions" showing that individuals who followed instructions given by a dentist were seven times more likely to be regular users of oral health care services. In line with this, Australian researchers, Sbaraini et al. (2012) also found that patients are likely to patronise dental care services if the dentist or dental team genuinely respects and listens to their concerns without judging them while educating and reassuring them. Patients were found to easily comply with and support prescribed preventive care options just because they were being treated as a person and not as a patient (Sbaraini et al., 2012). In a study, participants reported dental health workers at private hospitals to be more welcoming compared to those in the public or government owned hospitals in Kenya (Masiga, 2017). The participants revealed that the workers in the government

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hospitals or dental facilities were not caring enough, did not interact with them sufficiently and sometimes shouted at them or insulted them (Masiga, 2017).

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CHAPTER THREE

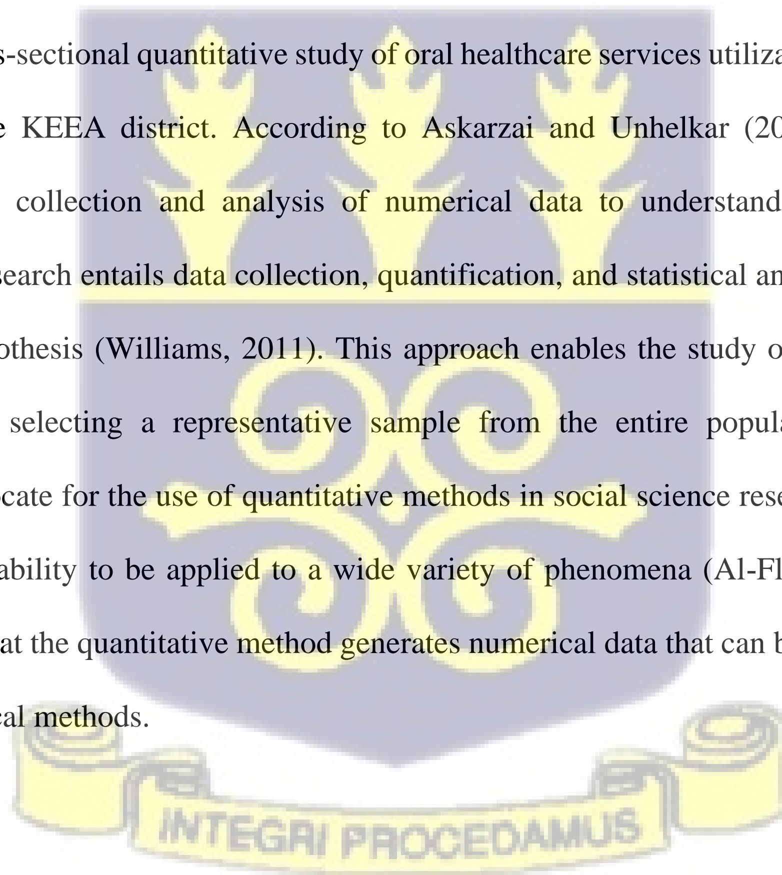
MATERIALS AND METHODS

3.1 Introduction

The chapter discusses the methods that were applied in the study as well as study design that was used. The study area, study population and criteria, sampling and sample size determination, variables and the data analysis were also discussed. The chapter finally outlined the ethical procedures that were followed.

3.2 Study Design

This was a cross-sectional quantitative study of oral healthcare services utilization among adult residents in the KEEA district. According to Askarzai and Unhelkar (2017), quantitative research is the collection and analysis of numerical data to understand a phenomenon. Quantitative research entails data collection, quantification, and statistical analysis to confirm or refute a hypothesis (Williams, 2011). This approach enables the study of huge groups of individuals by selecting a representative sample from the entire population. Numerous specialists advocate for the use of quantitative methods in social science research due to their versatility and ability to be applied to a wide variety of phenomena (Al-Flaiti, 2013). Eyisi (2015) stated that the quantitative method generates numerical data that can be analyzed using modern statistical methods.



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3.3 Study Area

The study was conducted in the Elmina and Ankaful sub-districts located in the Komenda-Edina-Eguafo-Abirem Municipality of the Central Region of Ghana. The Komenda- Edina-Eguafo- Abrem (KEEA) Municipality was carved out of the Cape Coast Metropolis in 1988. The population is estimated to be about 166,017 with an annual growth rate of 3.1%. It has four traditional areas and each with a paramountcy namely Komenda, Edina, Eguafo and Abrem. It is bordered to the north by Twifo Hemang; -Lower Denkyira, to the south by Atlantic Ocean (Gulf of Guinea), to the east by Cape Coast Municipality and to the west by Mpohor Wassa District in the Western Region.

The 2021 Population and Housing Census stipulates that there are more females (51.5%) than males (48.5%) in the municipality. The municipality also has a housing stock of 25,920 with the average number of people per household being 6.0; children constitute the largest proportion of households (39.2%). The population has a youthful, broad-based distribution with about 36.1% being 15 years and below and the elderly being 8.6 percent. The total age dependency ratio, 71.6%, indicates an extremely high economic burden of the non -working population on the working population. The predominant languages spoken are Fante and English. The people of Elmina and Ankaful are mostly Christians with a few practicing Islam and African Traditional religion.

Elmina is the Capital of the District. It has a population of about 33,576. This locality was the first point of contact for the early Europeans (the Portuguese) when they first visited Ghana, in 1482.

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Despite early exposure to western civilization and massive economic activities, the district still has about 70% of its population living in its rural parts. Elmina is a major tourist destination in Ghana. The castle of St. George d'Elmina and Fort Coenraadsburg on St. Jago Hill tourist sites attract over 100,000 tourists annually with about 50% of them visiting from abroad. Elmina is predominantly a fishing community. Other economic activities engaged in by inhabitants of the community include salt winning, boat making and farming.

Ankaful, on the other hand, is a predominantly farming community with a population of about 3,130. It is well known for its prison establishments, leprosarium and psychiatric hospital.

The youth also engage in artisanship such as carpentry, masonry, tailoring and hairdressing. Ankaful can be considered as a community, transitioning from a rural settlement to a semi-urban settlement with the influx of nurses, prison officers, non-governmental organizations and students.

The KEEA District has 41 health facilities which comprise 31 CHPS compounds, 3 Health centres, 3 clinics, 1 polyclinic and 1 hospital. The only dental clinic in the district is located within the premises of the Elmina polyclinic. The dental facility has a staff strength of six (6); two (2) dental surgeons and four (4) dental surgery assistants. The total number of new dental OPD attendances over the two-year period of existence is approximately 300 patients. Oral disease conditions that are commonly presented at the clinic are dental caries and abscesses which may require restorations or extractions depending on extent of decay, periodontal diseases which require scaling and polishing, or root planning. A few patients also report requiring replacement for their missing teeth.

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3.4 Study Population

The study population was made up of adults (people aged 18 years and above) residing in Elmina and Ankaful.

3.4.1. Inclusion Criteria

Persons aged 18 years and above whose consent were sought and were ready to participate in the study. Persons were of good health, sound mind and cooperative at the time of data collection.

3.4.2 Exclusion Criteria

Persons aged 18 and above, who did not consent to participating in the study or were chronically or critically ill or were not residents of Elmina and Ankaful (just on a visit) were excluded. Persons who were not cooperative were also excluded from this study. Children under 18 years were also excluded.

3.5 Sampling Strategies

3.5.1 Sample Size Determination

A prevalence of 23.9% obtained from the literature on dental healthcare utilization in a rural/peri-urban setting in Nigeria (Osadolor et al., 2019) was used to estimate the sample size for this study**.**

Where:

$$n = \frac{Z^2 PQ}{e^2}$$

n = the sample size when the population is greater than 10,000, Z = the standard normal deviation, usually set at 1.96 which corresponds to 95% confidence level, P = prevalence of utilization of dental services, and Q = 1-p. e is the margin of error.

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$$n = \frac{1.96^2(0.239 * 0.761)}{0.05^2}$$

N = 279.5 ~280

Accounting for 10% non- response = 10%*280= 28

Total sample size for study = 280+28 = 308

A total of 308 adults were sampled.

3.5.2 Sampling Methods

Elmina and Ankaful were sampled out of the five sub-districts in the KEEA Municipality using simple random sampling. Using the populations of Elmina and Ankaful, a population-proportionate-to-size (PPS) method was used to split the sample size into two, to determine the number of adults out of the 308, that were sampled from Ankaful and Elmina respectively.

On arriving in Elmina and Ankaful, out of the list of electoral areas, two of them were randomly selected in each sub-district. A population-proportionate-to-size (PPS) method was used to split the respective sample size for Ankaful and Elmina between the two electoral areas for each, to ascertain the number of adults to be sampled from each electoral area.

On arriving at the Electoral areas, with the help of the Assemblyman in determining the start and end point of the electoral areas, questionnaires were distributed to one adult per household consecutively until the desired sample size was met. In houses where the eligible participants were more than one a simple ballot was cast with one "yes" and several "no". The eligible candidate that picked the 'yes' ballot was made to participate in the study. A code was assigned to each individual to indicate that a questionnaire had already been administered to them.

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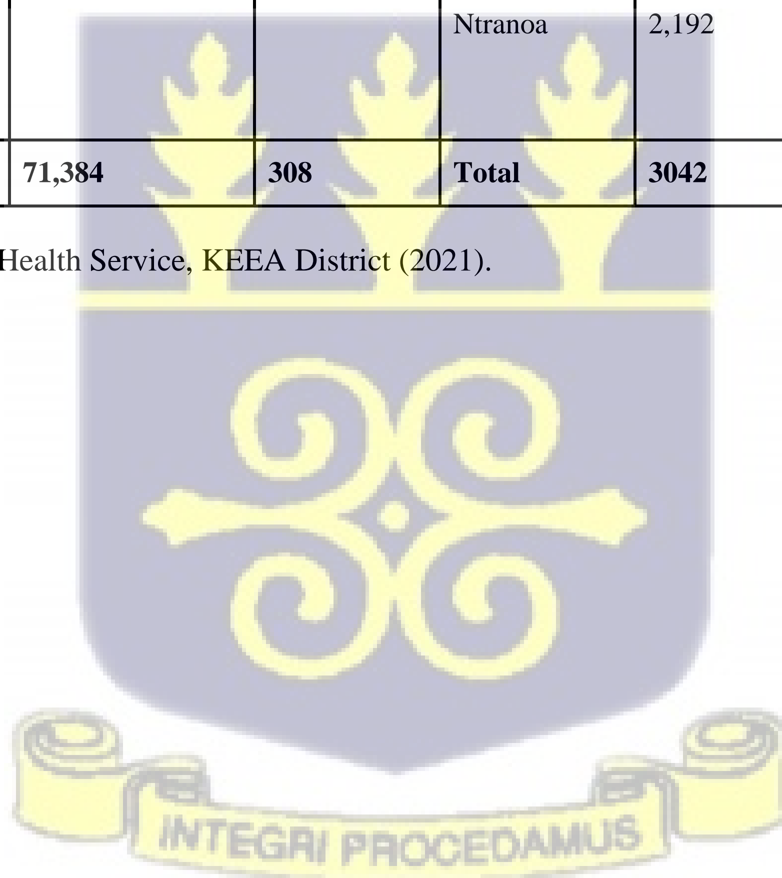
Table 3.1: Estimation of Sample Size Distribution among the study communities

Subdistricts sampled			**Electoral areas sampled**		
Name	Total population	Sample size	Name	Population	Sample size
Elmina	52, 491	$\frac{52491}{71384}*308$ = **226.5**	Bronyibima	5,053	$\frac{5053}{7247}*226.5$ **=158 adults**
			Ampenyi	2,194	$\frac{2194}{7247}*226.5$ **=69 adults**
			Total	**7,247**	
Ankaful	18,893	$\frac{18893}{71384}*308$ = **81.5**	Atonkwa	850	$\frac{850}{3042}*81.5$ **=23 adults**
			Ntranoa	2,192	$\frac{2192}{3042}*81.5$ **=59 adults**
Total	**71,384**	**308**	**Total**	**3042**	

Source: Ghana Health Service, KEEA District (2021).



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3.6 Study Variables

3.6.1 Dependent Variables

The dependent variable of interest for the study was utilization of oral healthcare services which was measured by the number of visits to the dental clinic annually per person. Adequate utilization was defined by at least two visits per person in a year.

3.6.2 Independent Variables

Predisposing Factors: Age, Sex, Educational level, Occupation, Income Level, Religious Affiliation, Marital Status.

Needs Factors: Self- Perceived Oral Health Status, Pain (associated with Acute or Chronic oral disease), Speech Discomfort, Masticatory Status.

Enabling Factors: Availability, Accessibility, Affordability, Oral health literacy, Awareness of consequences of oral diseases, Benefits of oral health services, Number of expected visits per year, Health Facility environment, Staff Attitude, Patient satisfaction.

3.7 Data Collection

3.7.1 Data Collection Techniques

Data was collected by the Lead Researcher and three research assistants, each mobilizing approximately six study participants daily. On the whole, a total of 24 study participants were met daily.

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3.7.2 Data Collection Tools

Structured questionnaires, consisting of open and closed ended questions, were administered to the respondents. These questions sought information on the predisposing factors (which

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included age, sex, marital status, occupation, educational level and religion), enabling factors (which include accessibility, availability and affordability and healthcare delivery) environmental factors, as well as need factors such as the individual's perceived need for oral healthcare services and the presence of acute or chronic illnesses. The frequency of utilization and the idea of what optimum utilization means to each respondent was assessed as well.

The data collection tool was structured into four different sections, with each part linked to a particular objective. The first section of the tool sought to ask questions on demographic background of the study participants. The second and third sections of the tool sought to gather information on the various factors that may influence the outcome variable (the utilization of oral health services). However, the determining factors were further broken into three key areas: enabling factors, predisposing factors and need factors. All these factors were clearly outlined in the data collection tool.

The final part of the tool asked participants about their oral health practice to determine oral health utilization among the population.

3.8 Data Processing

Data was cleaned and entered into the computer on the day it is collected. Regular checks and validation were made by the lead researcher in order to rid the data collected of all inconsistencies.

3.9 Data Analysis

Pre-coded data was entered into a Microsoft Excel Spreadsheet and imported into STATA 16.0 statistical software for statistical analysis. The socio-demographic characteristics was described using descriptive statistics with mean age and income level computed with their respective standard deviations. Other socio-demographic parameters such as marital status,

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occupation, educational level, religion and sex were described using percentages and frequencies.

The proportion of respondents who adequately utilized oral healthcare services was reported with 95% confidence interval. Chi-square test was performed to test for statistically significant associations between the various independent variables and the dependent variables.

Finally, all independent variables that showed statistically significant associations with the dependent variable were fitted into a multiple logistic regression model. Crude and adjusted odds ratios were reported at 95% confidence level with statistical significance set at $p \leq 0.05$.

3.10 Quality control

In order to ensure that complete and accurate data was obtained, internal consistency and validity of the questionnaires administered during pre-testing was evaluated. Training of research assistants touched on issues of confidentiality and professionalism among others. Written protocols and reference guides were given to the research assistants to use during the data collection period. Adequate supervision was done through daily check-ins with the research assistants to ensure that the data were collected as required.

3.10.1 Training of research assistants

Three individuals who were eloquent and fluent in English and the commonest local language (Fante) spoken in the study area were recruited to serve as research assistants for the study. The assistants were trained for a day. The assistants were trained in the explanation and administration of the questionnaire and ethical issues such as the need to obtain informed consent before interviewing the study participants. Another reason for the training was to ensure that the research assistants are able to follow the required procedure for data collection as well ensuring that the rights of the individuals were respected.

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3.10.2 Pretesting of questionnaire

The questionnaire was pretested on residents who live in the Komenda district of the Komenda-Edina-Eguafo-Abirem Municipality. This was performed by the Principal Investigator and the trained research assistants. The questionnaire was pretested to identify ambiguity and other difficulties that the participants were likely to encounter in responding to the questions. The questionnaire was revised and restructured according to the feedback obtained from the piloting. The pretesting was also done to assess the research assistants' administration of the questionnaires in order to prevent interviewer bias.

3.10.3 Editing of completed questionnaires

The principal investigator and researchers edited completed questionnaires before data entry.

3.11 Ethical Considerations

3.11.1 Ethical Clearance

Ethical clearance was obtained from the Ghana Health Service- Ethical Review Committee with an approval # **GHS-ER: 030/02.22**. Data collection commenced after ethical approval had been given.

3.11.2 Permission from Study Site

Permission was sought from the Komenda-Edina-Eguafo-Abirem Municipal Assembly before study was carried out.

3.11.3 Participants' Consent

After consent information had been read and thoroughly explained to participants, participants were allowed to either append their signatures or thumbprints to indicate their full consent to

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participating in the study. Study was only proceeded after respondents had voluntarily consented to it.

3.11.4 Risks and Benefits

The study did not seek to pose any potential risks to respondents. Respondents were engaged through questionnaires and their information kept highly confidential. The respondents stand to reap substantial benefits from this study, since findings from it will inform policymakers (Ministry of Health) on how to bridge the gaps in oral healthcare service delivery and strengthen existing systems in the district.

3.11.5 Confidentiality and Anonymity

Data was collected in a way that ensured that the privacy of respondents were respected. Study participants were assured of anonymity when consent was being sought. Hard copies of questionnaires administered would be destroyed one -year post-study while soft copies discarded five years post-study.

3.11.6 Voluntary Withdrawal

Respondents were not coerced to participate in the study nor follow through with it after commencement. They were made to know that they reserved the right to withdraw from the study at any point if they so wish.

3.11.7 Compensation

There was no financial rewards or materialistic benefits to the respondents

3.11.8 COVID-19 Protocols

COVID-19 preventive protocols, such as the use of face masks by researcher and team, regular handwashing and the use of alcohol-based hand sanitizers after every respondent and physical distancing were observed and practised.

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3.11.9 Data Storage and Usage

Hard copies of questionnaires that were used for data collection have been placed under lock-and-key in a storage drawer with the main researcher being the only person with access to them. Soft copies of data have been stored in a file on a computer, secured with a password.

3.11.10 Conflict of Interest

There is no conflict of interest. This research was carried out for academic purposes only and as such responses gathered from questionnaires were solely used for that purpose.

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CHAPTER FOUR

RESULTS

4.1 Introduction

The main findings of the study are presented in this chapter. The findings have been presented in line with the study objectives. For each of the objectives, the results have been presented in frequencies and percentages and depicted in tables.

4.2 Socio-demographic characteristics

The results of the socio-demographic characteristics have been presented in Table 4.1. A total of 297 respondents participated in the study given a response rate of 96.4%. The mean age of the participants was 34.8 ± 11.9 years. Majority (n =201; 67.6%) of the participants were below the age of 40 years. Majority (n = 154; 51.8%) of the participants were female. Similarly, more than half (n = 153; 51.5%) of the study participants were married. About 17% (52) of the participants had completed tertiary education with the same proportion completing secondary education. Nearly half (n = 133; 44.8%) of the participants were engaged in either fishing or crop agricultural activities as their occupation. Average monthly income of the participants was GHS 675 with minimum and maximum amount of GHS 420 and GHS 5,400. Majority (n = 227; 76.4%) of the participants were Christians with only 3.7% (11) identifying as traditionalists.

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Table 4.1: Socio-demographic characteristics of the study participants

Variables	Frequency (n)	Percent (%)
Age in years (M ± SD)	34.8 ± 11.9	
Below 20	21	7.1
20 – 29	94	31.6
30 – 39	86	28.9
40 – 49	64	21.6
50+	32	10.8
Total	297	100
Sex		
Male	143	48.2
Female	154	51.8
Total	297	100
Marital Status		
Single	104	35.0
Married	153	51.5
Divorced/Separated	17	5.7
Co-habitating	14	4.7
Widow/widower	9	3.1
Total	297	100
Educational status		
No Education	19	6.4
Primary	81	27.3
Junior High/Middle School	93	31.3
Secondary	52	17.5
Tertiary	52	17.5
Total	297	100
Occupation		
Unemployed	54	18.2
Self employed	80	26.9
Employed (salary worker)	22	7.4
Fishing/Agriculture	133	44.8
Others, housewife	8	2.7
Total	297	100
Religion		
Christian	227	76.4
Muslim	59	19.9
Traditional	11	3.7
Total	297	100

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4.3 Awareness, knowledge and Utilization of Oral Health Services

Table 4.2 presents the results of the analysis of the participants' awareness and utilization of oral health services in the study area. Less than a quarter (n = 66; 22.2%) of the participants were not aware of an existing dental facility in the district. On the other hand, nearly three-fourth (n = 215; 72.4%) of the participants had visited the dental facility in the district at least once in the past. Assessment on knowledge level of participants on the number of times an individual is expected to visit the dental facility in a year was done and the result showed that more than a third (n = 109; 36.7%) of the participants were able to correctly mention that an individual is expected to visit the dental health facility at least twice in a year. However, for oral health service utilization (i.e., visit to the dental facility at least twice in the last 12 months for oral services), only 30.6% (91) of the participants had utilized oral healthcare services from any dental facility irrespective of the location. Analysis of oral health literacy showed that more than half (n = 175; 58.9%) of the participants got their information on oral health from friends and relatives while 18.5% (55) received their information through media houses. About 57% (168) of the participants indicated that routine dental care improves one's oral hygiene while about a quarter (n = 74; 24.9%) mentioned that dental care prevents dental complications. Only 2 (0.7%) indicated that there are no benefits to routine dental care. Nearly two-thirds (n = 193; 65%) of the participants mentioned chronic pain as the major consequences of untreated oral disease conditions.

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Table 4.2: Awareness, knowledge and utilization of oral health services

Variables	Frequency (n)	Percent (%)
Aware of existing dental facility in the district		
Aware	231	77.8
Not aware	66	22.2
Total	297	100
Ever visited dental facility in the district		
At least one visit in the past	215	72.4
Never visited	82	27.6
Total	297	100
Knowledge on number of dental visits per year per person		
Once	124	41.7
Twice (6 monthly)	109	36.7
Once in a lifetime	2	0.7
Don’t know	62	20.9
Total	297	100
Utilization of oral health services		
Utilized oral health	91	30.6
Did not utilize oral health	206	69.4
Total	297	100
Source of information on oral literacy		
Friends and Relatives	175	58.9
During a visit to health institution	67	22.6
Media	55	18.5
Total	297	100
Benefits of routine dental care (multiple responses)		
Improves oral hygiene	168	56.6
Reduces dental caries	123	41.4
Prevents dental complications	74	24.9
Prevents mouth odour	171	57.6
No benefit	2	0.7
Consequences of untreated oral disease conditions		
Blindness/Death	4	1.4
Chronic pain	193	65.0
Facial deformities	53	17.8
I don’t know	47	15.8
Total	297	100

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4.4 Health service-related and other enabling factors for oral health services

The results of the analysis of the health service-related factors have been presented in Table 4.3. The analysis was done to capture the responses of all those who have ever visited a dental facility in the past (n = 215). Majority (n = 164; 76.3%) of the participants lived within a radius of less than 3 km from their nearest dental facility with nearly a third (n = 65; 30.2%) who spent less than 30 minutes travelling to the facility. The main means of transport to the nearest dental facility was through walking (n = 89; 41.1%). Nearly a third (n = 67; 31.1%) of the participants indicated that they are unable to pay for dental care services. About 17% (36) of the participants do out-of-pocket payment for dental care. For those doing out pocket payment, the payments were made on services such as consultation, diagnosis and treatment.

Almost all (n = 208; 96.7%) the participants indicated that the dental care facility they visited had a clean environment. About 95% (205) of the participants mentioned that the health staff who provided the required services to them were friendly. Majority (n = 115; 53.5%) of the participants indicated they spent between 30-45 minutes at the facility. Almost all (n = 209; 97.2%) of the participants mentioned that the health staff who attended to them explained the condition of their oral health to them. About 17% (37) of the participants suffered from post-operative complications which included pain, bleeding, and swelling.

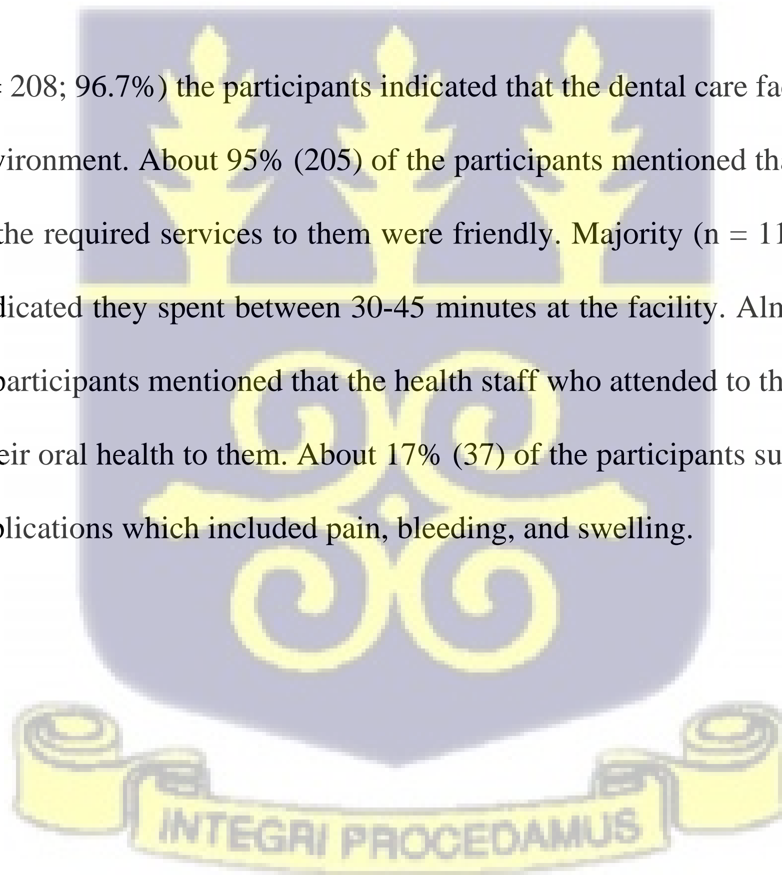

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Table 4.3: Health service and other enabling factors for oral health use

Variables	Frequency (n)	Percent (%)
Distance to nearest dental facility		
Less than 3km	164	76.3
3-5 kms	16	7.4
Above 5km	35	16.3
Travel time to nearest dental facility		
Less than 30 minutes	65	30.2
30 – 39 minutes	104	48.4
40+ minutes	46	21.4
Means of transport to dental facility		
Walking	89	41.1
Vehicle	63	29.3
Other means	63	29.3
Ability to pay for dental care		
Yes	127	59.1
No	67	31.1
Sometimes	21	9.8
Means of payment		
NHIS	164	76.3
Out of pocket	36	16.7
Insurance and out-of-pocket	15	7.0
Clean dental clinic environment		
Yes, clean	208	3.3
Not clean	7	96.7
Total	215	100
Attitude of staff to patients		
Friendly	205	95.3
Unfriendly	10	4.7
Patient waiting time during dental care		
Below 30 minutes	77	10.7
30-45 minutes	115	35.8
Above 45 minutes	23	53.5
Nurses/doctors explained condition very well to patient		
Yes	209	97.2
No	6	2.8
Suffered any post-operative complications		
Yes	37	17.2
No	178	82.8

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4.5 Other patient-related factors on oral health service utilization

Table 4.4 highlights the results of the analysis of other patient-related factors that may influence the use of oral health services. About 34% (74) of the participants who had ever utilised oral health services did not take the decision to seek dental care themselves. They however consulted others including friends and relatives. The most dominant dental conditions that were reported to the dental facilities were mainly toothache, 48% (103), gum disease, 19% (42) and painful swelling, 15% (33). Majority (n = 141; 65.6%) of the participants who utilized oral health services went purposely for medication which was followed by extraction of teeth (n = 35; 16.3%). Nearly two-thirds (n = 134; 62.3%) of the participants expressed fear of pain for utilizing oral health services. A little over half (n = 108; 50.2%) of the participants utilised traditional means for dental treatment. For those who use traditional treatment, almost all (n = 102; 94.4%) of them used herbal preparations.

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Table 4.4: Other patient-related factors

Variables	Frequency (n)	Percent (%)
Decision to visit dental facility was determined by		
Myself	141	65.6
Others (relatives, friends)	74	34.4
Total	215	100
Condition that was reported to dental facility		
Bad breath	10	4.7
Gum disease	42	19.5
Toothache	103	47.9
Painful swelling	33	15.3
Other conditions	27	12.6
Total	215	100
Type of treatment		
Cleaning	7	3.2
Dentures	18	8.4
Extraction	35	16.3
Filling	14	6.5
Medication	141	65.6
Total	251	100
Fear of pain		
Yes	134	62.3
No	81	37.7
Total	215	100
Use of any traditional means for dental treatment		
Yes	108	50.2
No	107	49.8
Total	215	100
Type of traditional means for treatment		
Herbal preparation	102	94.4
Other method	6	5.6
Total	108	100

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4.6 Bivariate analysis of socio-demographic factors and its association with oral health utilization

The results of the bivariate analysis of socio-demographic factors and its association with oral health has been presented in Table 4.5. The results of the analysis showed that only age ($\chi2$ = 26.0; p-value < 0.001) and marital status ($\chi2$ = 11.9; p-value = 0.018) of the participants were the socio-demographic factors that had significant association with oral health service utilization. The result showed that the proportion of the participants who utilized oral health was relatively higher among those who were aged 50+ (68.7%; n= 22) compared to all other age groups. For the other age groups, more than two-thirds did not utilize oral health services. On marital status, more than a quarter (n = 59; 38.6%) of the participants who were married utilized oral health services. The utilization of oral health services was relatively higher (n = 21; 40.4%) among those who had completed tertiary education compared to those who had other levels of education.

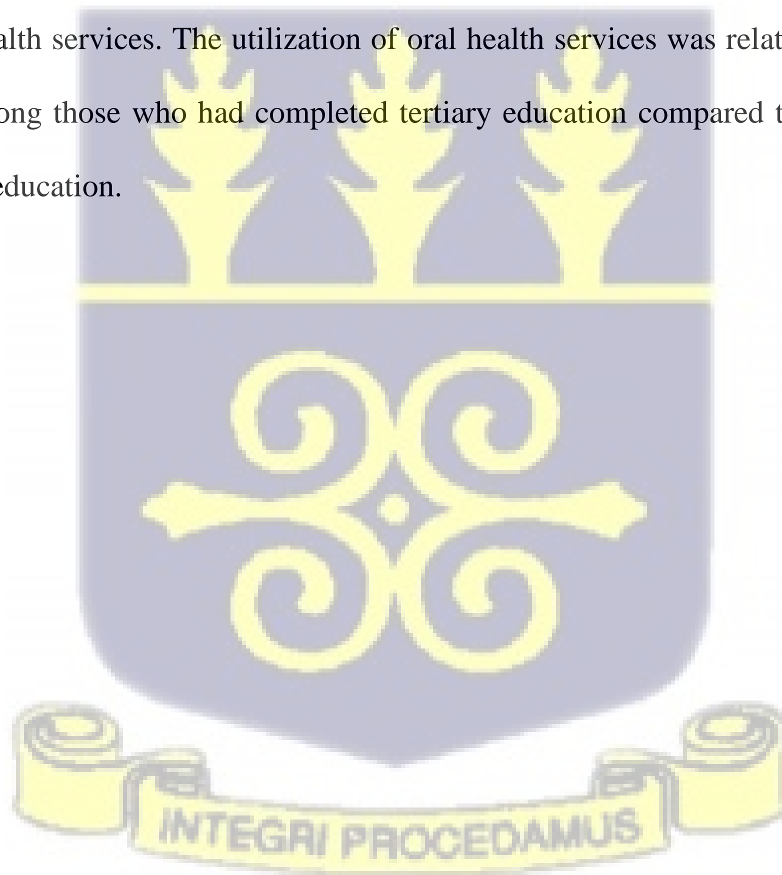

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Table 4.5: Bivariate analysis of demographic factors and oral health utilization

Variable	Utilization of oral health services		Chi-square	p-value
	Not utilized n (% row)	Utilized n (% row)		
Age in years			26.0	0.000
Below 20	14 (66.7)	7 (33.3)		
20 – 29	73 (77.7)	21 (22.3)		
30 – 39	61 (70.9)	25 (29.1)		
40 – 49	48 (75.0)	16 (25.0)		
50+	10 (31.3)	22 (68.7)		
Sex			0.04	0.837
Male	100 (69.9)	43 (30.1)		
Female	106 (68.8)	48 (31.2)		
Marital Status			11.9	0.018
Single	79 (76.0)	25 (24.0)		
Married	94 (61.4)	59 (38.6)		
Divorced/Separated	12 (70.6)	5 (29.4)		
Co-habitating	13 (92.9)	1 (7.1)		
Widow/widower	8 (88.9)	1 (11.1)		
Educational status			5.4	0.246
No Education	13 (68.4)	6 (31.6)		
Primary	63 (77.8)	18 (22.2)		
Junior High/Middle School	65 (69.9)	28 (30.1)		
Secondary	34 (65.4)	18 (34.6)		
Tertiary	31 (59.6)	21 (40.4)		
Occupation			1.2	0.873
Unemployed	35 (64.8)	19 (35.2)		
Self employed	55 (68.7)	25 (31.3)		
Employed (salary worker)	15 (68.2)	7 (31.8)		
Fishing/Agriculture	96 (72.2)	37 (27.8)		
Others, housewife	5 (62.5)	3 (37.5)		
Religion			2.6	0.268
Christian	153 (67.4)	74 (32.6)		
Muslim	46 (78.0)	13 (22.0)		
Traditional	7 (63.6)	4 (36.4)		

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4.7 Bivariate analysis of health service factors and its association with oral health utilization

The results of the bivariate analysis of the health service factors and its association with oral health service utilization is presented in Table 4.6. The results of the bivariate analysis of the relationship between health service/enabling factors and oral health service utilization showed that ability to pay ($\chi2$ = 5.1; p-value = 0.049), means of payment ($\chi2$ = 8.7; p-value = 0.013), patient waiting time at the dental clinic ($\chi2$ = 6.9; p-value = 0.013) and health workers/dentist ability to explain the type of treatment or service provided ($\chi2$ = 4.5; p-value = 0.033) had significant association with oral health service utilization.

The proportion of the participants who utilized oral health services was relatively higher among those who were able to pay (n = 59; 46.5%) and were sometimes able to pay (n = 11; 53.4%) than those who were not able to pay (n = 21; 31.3%). Again, the proportion of respondents who utilized oral health services was comparatively higher among those who made out-of-pocket payment than those who paid with NHIS membership cards. The proportion of the respondents who utilized oral health services decreased as the time spent at the facility also increased. All those who indicated that their health workers did not take time to explain the dental care services they were seeking were unable to make at least two visits within a year.

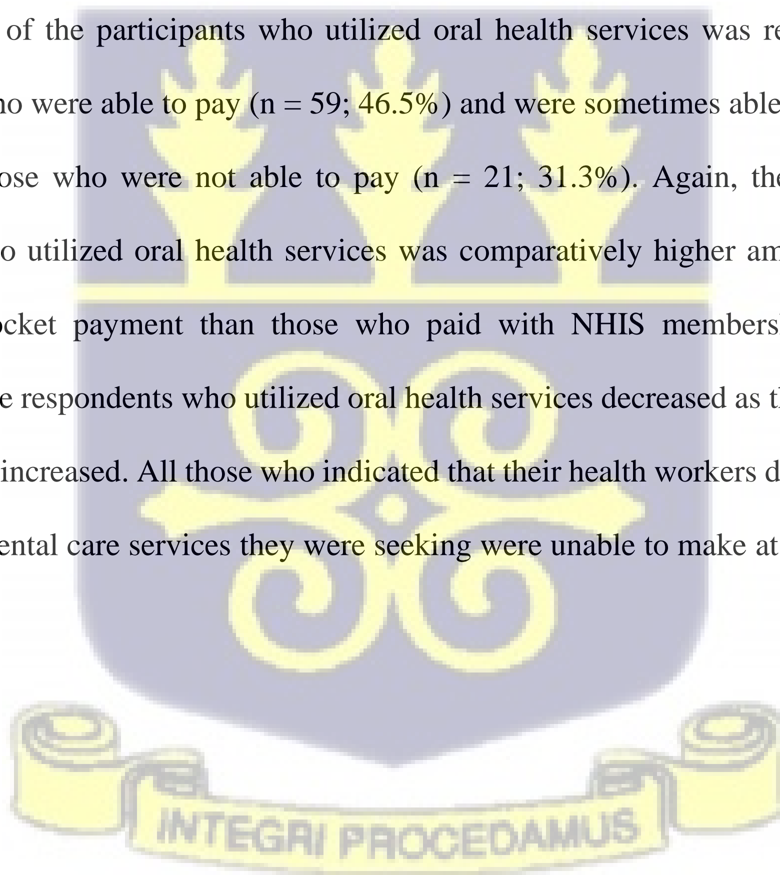

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Table 4.6: Bivariate analysis of relationship between health service factors and oral health utilization

Variable	Utilization of oral health services			
	Not utilized n (% row)	Utilized n (% row)	Chi-square	p-value
Distance to nearest dental facility			3.2	0.197
Less than 3km	90 (54.9)	74 (45.1)		
3-5 kms	9 (56.3)	7 (43.7)		
Above 5km	25 (71.4)	10 (28.6)		
Travel time to nearest dental facility			3.8	0.147
Less than 30 minutes	31 (47.7)	34 (52.3)		
30 – 39 minutes	64 (61.5)	40 (38.5)		
40+ minutes	29 (63.0)	17 (37.0)		
Means of transport to dental facility			3.6	0.163
Walking	58 (65.2)	31 (34.8)		
Vehicle	34 (54.0)	29 (46.0)		
Other means	32 (50.8)	31 (49.2)		
Ability to pay for dental care			5.1	**0.049**
Yes	68 (53.5)	59 (46.5)		
No	46 (68.7)	21 (31.3)		
Sometimes	10 (47.6)	11 (53.4)		
Means of payment			8.7	**0.013**
NHIS	103 (62.8)	61 (37.2)		
Out of pocket	13 (36.1)	23 (63.9)		
Insurance and out-of-pocket	8 (53.3)	7 (46.7)		
Clean dental clinic environment			0.6	0.420
Yes, clean	121 (58.2)	87 (41.8)		
Not clean	3 (42.9)	4 (57.1)		
Attitude of staff towards patients			2.1	0.143
Friendly	116 (56.6)	89 (43.4)		
Unfriendly	8 (80.0)	2 (20.0)		
Patient waiting time during dental care			6.9	**0.013**
Below 30 minutes	40 (51.9)	37 (48.1)		
30-45 minutes	65 (56.5)	50 (43.5)		
Above 45 minutes	19 (82.6)	4 (17.4)		
Nurses/doctors explained condition very well to patient			4.5	**0.033**
Yes	118 (56.5)	91 (43.5)		
No	6 (100.0)	-		
Suffered any post-operative complications			2.5	0.113
Yes	17 (45.9)	20 (54.1)		
No	107 (60.1)	71 (39.9)		

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4.8 Bivariate analysis of relationship between other patient-related factors oral health utilization

The results of the bivariate analysis between other patient-related factors and oral health utilization is presented in Table 4.7. Among all the patient-related factors, fear of pain ($\chi2$ = 7.0; p-value = 0.008) and the use of traditional means for dental treatment ($\chi2$ = 8.1; p-value = 0.005) showed significant association with oral health utilization. Nearly half of the respondents who did not express fear of pain in dental care utilized oral health services while less than a third of those who expressed fear utilized oral health services. More than two-thirds (n = 72; 67.2%) of the respondents who indicated they sometimes use any herbal preparation for dental treatment did not utilize oral health services from dental clinics.

Table 4.7: Bivariate analysis of relationship between health service factors and oral health utilization

Variable	Utilization of oral health services		Chi-square	p-value
	Not utilized n (% row)	Utilized n (% row)		
Condition that was reported to dental facility			6.4	0.169
Bad breath	5 (50.0)	5 (50.0)		
Gum disease	18 (66.7)	9 (33.3)		
Toothache	25 (59.2)	17 (40.5)		
Painful swelling	52 (50.5)	51 (49.5)		
Other conditions	24 (72.3)	9 (27.3)		
Type of treatment			3.4	0.076
Cleaning	3 (42.9)	4 (57.1)		
Dentures	6 (33.3)	12 (66.7)		
Extraction	17 (48.6)	18 (51.4)		
Filling	7 (50.0)	7 (50.0)		
Medication	92 (65.2)	49 (34.8)		
Fear of pain			7.0	**0.008**
Yes	56 (69.1)	25 (30.9)		
No	68 (50.7)	66 (49.3)		
Use of any traditional means for dental treatment			8.1	**0.005**
Yes	72 (67.3)	35 (32.7)		
No	52 (48.2)	56 (51.8)		
Type of traditional means for treatment			0.9	0.350
Herbal preparation	48 (47.1)	54 (52.9)		
Other method	4 (66.7)	2 (33.3)		

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4.9 Multivariate analysis of factors that are associated with oral health service utilization

All independent variables that showed statistically significant associations with the utilization of oral health services were fitted into a multiple logistic regression model. The results of the analysis of the regression model is presented in Table 4.8. After controlling for all significant variables, six variables; age, marital status, means of payment, patient waiting time at dental clinics, fear of pains and the use of herbal preparation showed significant association with oral health service utilization. For age, respondents who were aged 50+ years were 7 times more likely to utilize oral health services compared to those who were below 20 years (AOR: 7.5; 95% CI: 1.2, 45.7). Respondents who were married had 2.7 times the odds of utilizing oral health services compared to those who were single (AOR: 2.7; 95% CI: 1.2, 6.2). Respondents who were single had 98% chances of utilizing oral health services compared to respondents who were widows/widowers (AOR: 0.02; 95% CI: 0.0 – 0.4). On means of payment, the results showed that respondents who made out-of-pocket payment were about 5 times more likely to utilize oral health services than those who depended on NHIS for their healthcare services (AOR: 4.7; 95% CI: 1.6, 13.7).

The time spent by patients at dental clinics also had significant association with oral health service utilization. Respondents who indicated that they spent less than 30 minutes at the facility were 4 times more likely to utilize oral health services compared to their colleagues who spent more than 45 minutes at the facility during their first visit (AOR: 4.1; 95% CI: 1.1. 15.7). The odds of utilizing oral health services was 2.4 times higher among respondents who did not express any fear of pain for visiting any dental clinic than those who expressed fear of pain (AOR: 2.4; 95% CI: 1.1, 4.9). Finally, respondents who did not depend or used any traditional means (herbal preparation or any other form) were about 3 times more likely to

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utilize oral health services at the dental clinic than those who used any traditional method (AOR: 2.9; 95% CI: 1.4, 5.8).

Table 4.8: Multivariate analysis of factors that determines the utilization of oral health services

Variables	Crude Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI
Age in years				
Below 20	ref	-	ref	-
20 – 29	0.6	0.2 – 1.6	0.4	0.1 – 1.3
30 – 39	0.8	0.3 – 2.2	0.7	0.2 – 2.8
40 – 49	0.7	0.2 – 1.9	0.4	0.1 – 1.7
50+	4.4	1.3–14.3**	7.5	**1.2 – 45.7***
Marital Status				
Single	ref	-	ref	-
Married	2.0	1.1 – 2.4**	2.7	**1.2 – 6.2****
Divorced/Separated	1.3	0.4 – 4.1	0.9	0.1 – 6.2
Cohabitating	0.2	0.1 – 1.9	0.2	0.0 – 4.6
Widow/widower	0.3	0.1 – 3.3	0.02	**0.0 – 0.4***
Distance to nearest dental facility				
Less than 3km	2.3	1.2 – 4.9***	2.7	0.9 – 7.6
3-5 kms	1.9	0.6 – 6.6	1.1	0.2 – 6.5
Above 5km	ref	-	ref	-
Ability to pay for dental care				
Yes	1.9	1.0 – 3.5***	0.9	0.4 – 2.1
No	ref	-	ref	-
Sometimes	2.4	0.9 – 6.5	2.5	0.6 – 10.5
Means of payment				
NHIS	ref	-	ref	-
Out of pocket	3.0	1.4 – 6.3*	4.7	**1.6 – 13.7***
Insurance and out-of-pocket	1.5	0.5 – 4.3	1.0	0.2 – 4.1
Patient waiting time during dental care				
Below 30 minutes	4.4	1.4 – 14.1**	4.1	**1.1 – 15.7*****
30-45 minutes	3.6	1.2 – 11.4**	3.3	0.9 – 12.4
Above 45 minutes	ref	-	ref	-
Fear of pain				
Yes	ref	-	ref	
No	2.2	1.2 – 3.9*	2.4	**1.1 – 4.9*****
Use of any traditional means for dental treatment				
Yes	ref		ref	
No	2.2	1.3 – 3.8*	2.9	**1.4 – 5.8***

NB: * < 0.01 ** < 0.02 *** < 0.05

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CHAPTER FIVE

DISCUSSION

5.1 Introduction

The study assessed the rate of utilization of oral health services and the associated health service and patient-related factors that influenced the rate of utilization among the people of KEEA Municipality. In response to study research questions and the specific objectives, the study has observed key findings as presented in the earlier chapter. This chapter therefore discusses the observed findings in relation to other studies from literature and provides some meaning and reason behind some of the key observations. Comparative discussions are also made with other studies to ascertain whether the observed confirms what other studies have observed or provides a new result different from what is observed in literature.

5.2 Awareness and utilization of oral health services

Oral health service utilization is not considered a major health need for most people in the developing world despite the increasing rate of oral diseases and problems. With the availability of a dental clinic in the KEEA district coupled with the high awareness level of the availability of the facility, it was expected that utilization rate would have increased over time especially among the adult population. Even though about 72% of the people had ever visited the facility for oral health services in the past, only 30.6% met the standard WHO requirement of at least 2 visits to dental health facilities for oral health services in a year. Consistent and deliberate use of oral health services was a challenge for many.

As observed in this study, for all those who have ever visited a dental health facility at least once reported to the facility with some oral problem. Almost all of them reported cases of toothache, painful swelling and any other form of dental challenges. Only 4.7% of those who

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visited the dental health facility at least once reported bad breath. None of the respondents visited the facility for routine check-ups or for mouth washing.

While others see dental/oral care as a necessity, others may consider it as a luxury and that a visit to the dental facility for oral healthcare services should be done only when there is a major dental problem. Majority of the studies on utilization of oral health services in Ghana have shown significantly lower rates, mostly lower than the observed rate in this study. Adu-gyamfi & Adomah-afari, (2022) in a similar study in Asamankese had observed that about 58.1% of the people had visited the dental facility at least once in a lifetime, however, complete utilization as per the WHO standard was 21.1%, a result which is far below the complete utilization of 30.6% which was observed in this study at KEEA. Adusei, (2018) also in a similar study in East Akim Municipality observed oral health service utilization prevalence of 27%, a result which is relatively lower than the observed result of 30.6% in this study at KEEA.

In Uganda, Ocwia et al., (2021) had also confirmed a lower oral healthcare service utilization rate of 28% among the general population. However, among people who had specific dental health problems, about 52% had sought dental care. The observed result on the utilization of oral healthcare services in the study by Ocwia et al., (2021) could have been influenced largely by those who had dental problems. Tan et al., (2021) in their study in Malaysia also reported a prevalence of 13.2%, which is far lower than the observed result of 30.6% in KEEA. In doing this comparative analysis, it could be concluded that the people of KEEA are doing well with oral healthcare service utilization.

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Ofili et al., (2020) in their study in Nigeria among students observed a relatively higher rate of 40.6% of oral healthcare service utilization among in-school adolescents in Calabar compared to the observed result in this study at KEEA. The result by Ofili et al., (2020) is seen as one of

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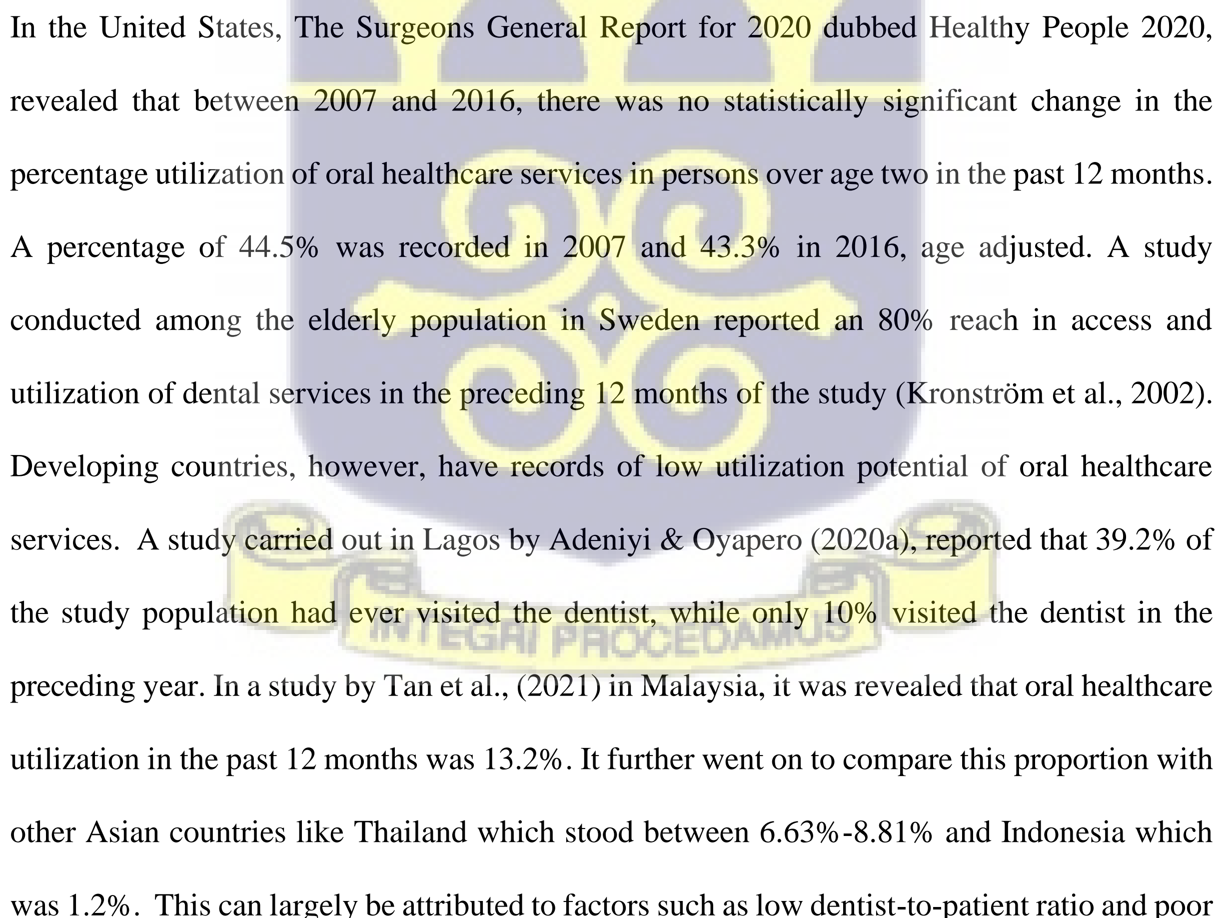
high utilization rates among many studies conducted in Africa or by extension, developing countries. The difference however between the study by Ofili et al., (2020) and this study in KEEA is that while this study in KEEA focused on the general population, the study by Ofili et al., (2020) focused only on in-school attendance in an urban area of Calabar. Adeniyi & Oyapero (2020a) in another study in Nigeria also observed a higher oral healthcare service utilization rate of 39.2%. Hariyani et al., (2020b) had argued that the utilization of oral health services among the developed countries ranges between 40 – 80%, a rate that is comparatively higher than the observed result in this study at KEEA and by extension, almost all studies in developing countries. It is therefore important to understand why developing countries continue to record relatively lower rates of oral health service utilization compared to those in developed countries.



In the United States, The Surgeons General Report for 2020 dubbed Healthy People 2020, revealed that between 2007 and 2016, there was no statistically significant change in the percentage utilization of oral healthcare services in persons over age two in the past 12 months. A percentage of 44.5% was recorded in 2007 and 43.3% in 2016, age adjusted. A study conducted among the elderly population in Sweden reported an 80% reach in access and utilization of dental services in the preceding 12 months of the study (Kronström et al., 2002). Developing countries, however, have records of low utilization potential of oral healthcare services. A study carried out in Lagos by Adeniyi & Oyapero (2020a), reported that 39.2% of the study population had ever visited the dentist, while only 10% visited the dentist in the preceding year. In a study by Tan et al., (2021) in Malaysia, it was revealed that oral healthcare utilization in the past 12 months was 13.2%. It further went on to compare this proportion with other Asian countries like Thailand which stood between 6.63%-8.81% and Indonesia which was 1.2%. This can largely be attributed to factors such as low dentist-to-patient ratio and poor

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distribution of oral healthcare facilities with most of them being centred in and around urban and peri-urban dwellings.

5.3 Factors determining the utilization of oral health services

In general, the utilization of oral health has been influenced by a number of factors both in developing and developed countries. In reference to the Anderson-Newman model of health care services, the factors may be classified under enabling, need and predisposing factors but all linked under the objectives for the study. Under the predisposing factors, age and marital status largely influenced the observed oral health service utilization rate while the fear of pain remained and the use of herbal preparation were the need factors that also influenced the outcome of oral health service utilization rate. Three enabling factors, distance to the facility, means of payment and patient waiting time also influenced the outcome of oral health service utilization.

Age has been a major factor in the use of oral health services. The study observed that the aged 50+ years utilized oral health services more than the youth, especially those below 30 years. Studies by Lo et al., (2001), Hamasha et al., (2019) and Ofili et al., (2020) corroborate the findings in this study at KEEA. It was evident from all the other studies that the aged population tend to experience more dental problems especially tooth ache and swollen gums and therefore seek more oral health services. The study in KEEA noted that more than 80% of the people utilised dental health services mainly due to gum disease, toothache or painful swelling. These common dental problems are largely associated with age. Hamasha et al., (2019) explained that more than three-fourth of all dental care by the aged are mainly curative rather than preventive.

Ofili et al., (2020) also postulated that the difficulty in chewing meat and other food products among the aged, especially 65+, increases the probability of seeking dental care.

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Ahmad et al., (2018) and Tan et al., (2021) had however observed a contrary result on the association between age and oral health utilization. Ahmad et al., (2018) and Tan et al., (2021) revealed that the younger population had higher odds of seeking oral care compared to the aged. They noted that the younger population utilized oral health as a means of improving their breath. This was common for the urban population as was observed in their study.

Marital status of the people was another interesting predisposing factor that influenced the outcome of oral health service utilization. Though oral health service utilization was relatively high in all the marital status categories, married people were more likely to go for routine oral check-ups than those who are single or may be divorced. Comparatively, the odds of utilising oral health services was significantly higher among singles than those who were divorced. Several logical reasoning may be assigned these findings but none of them is scientific. Married people may be influenced by their partners to go for routine check-ups especially when there is mouth odour. The sensitive nature of mouth odour in marriages makes it an essential component of family oral healthcare. Obeidat et al. (2014) in a study also observed similar results were married women were more likely to utilize oral health services than those who were single. Though married people utilised oral health more than singles, singles however are very particular about their smell, both body and mouth. Mariño & Giacaman (2017) had observed that the use of oral health services by single people was basically influenced by good breath rather than dental care. This may not necessarily be the case for all singles.

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Access to health care services is a major enabling factor that determines the rate of utilization of a particular health care service. Access, mostly defined by cost and distance, features prominently in the WHO universal health coverage concept. For this study, though the cost was significant at first level of analysis, it did not show any significant association with oral

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health utilization after controlling for all other variables. However, the distance factor determined the rate at which oral health services were utilised in KEEA among the study population. The closer an individual to a dental care facility, the higher the likelihood of the person utilising the services as was observed in the study. This result corroborates with the findings of the study by Masiga (2017), who noted that patients who have their homes closer to a dental clinic were more likely to use the services of the clinic than people who stay more than 5km away from the facility. This is predominantly true especially in rural and peri-urban communities where the cost of transportation to the nearest facility is a major concern. Long travel time to a dental facility as a result of long distance also reduces the probability of an individual utilising oral health services. Kadaluru et al. (2012) and Shubayr et al. (2021) have all corroborated the results from this study on the distance as a major factor to oral health service utilization.

While distance to the facility serves as a setback/barrier to oral health utilization, time spent at the facility was also observed to be one of the enabling factors for oral health service utilization. People who spend less than 30 minutes during their first visit at a dental clinic were more likely to go back for another service after six months. With the WHO definition of oral health service utilization, it is important that the hospital environment provides a conducive atmosphere that encourages others to revisit after first visit. This study at KEEA observed that people who spent more than 45 minutes in the facility were not likely to return to the facility for the second time within a year. Shubayr et al. (2021) in their study also observed a similar result, noting, the longer the period of time spent at a dental clinic during first visit, the less likely the person to return after six months. The waiting time in any given facility may be influenced by the number of health workers available to provide the required services to patients. However, if the demand for the services exceeds the available service providers, the situation may worsen and could

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put pressure on the health staff. The study did not analyse the availability and the number of qualified dentist/health workers to provide the required services and therefore may be presumptive to conclude that the long waiting times was influenced by the health workers.

The introduction of the National Health Insurance Scheme was to resolve the problem of financial access to healthcare services. The concept of cash and carry which hitherto was the norm in healthcare delivery was to be eliminated with the NHIS concept. However, the NHIS does not pay for all health services provided at healthcare facilities. This study observed that, though, majority of the people used NHIS as means of payment for oral health services, those who made out-of-pocket payment were more likely to visit the dental facility at least twice in a year. People making out of pocket payment have the purchasing power and could afford the service at any time. Unfortunately, those using NHIS could largely afford basic services like consultation and diagnosis and not treatment. At first visit, some were able to pay through the NHIS for consultation but are unable to follow up for the second especially when it is recommended that they are to come for further treatment. Ocwia et al., (2021) made similar observations in their study, confirming that people who are willing to pay for oral health services frequently visit oral health facilities for oral health services. Ocwia et al., (2021) further indicated that, private insurance users especially in urban areas have higher odds of utilising oral health services. The assertion on private insurance users was that the coverage under the package extends to all oral health services, from consultation through to diagnosis, treatment and medication. Users of private insurance may feel cheated if services are not utilised and therefore the need for frequent use of the services.

Need factors also contribute largely to the use of oral health services. Jiang et al. (2005) had postulated that pain associated with acute or chronic oral disease increases one's decision to utilize oral health services. However, this study at KEEA noted that the use of oral healthcare

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services was not determined by pain associated with chronic oral disease but the fear of pain that one anticipates for using oral healthcare services. This mostly happens either because they have heard similar experiences from others, or they have had bad experiences with seeking dental care in the past. Piovesan et al. (2011) and de Palma et al. (2016) have all made similar observations in their respective studies where respondents were afraid of utilising oral health services and therefore feel reluctant to visit any facility despite it being in their vicinity. Varenne et al., (2006) in their study had observed that people were not willing and ready to go to any dental facility to experience any pain when they do not have an oral health problem or chronic oral disease. The results of the study by Dou et al., (2018) on the prevalence anxiety for dental pain corroborates the finding in this study at KEEA. Dou et al., (2018) noted that people are not willing to visit dental clinics because of the anxiety associated with oral disease pain.

For fear of pain and other enabling factors including cost, others decide to depend on herbal preparation as an alternative for oral health services. As observed in this study, the use of herbal preparation was seen as an alternative for oral health services at dental health facilities, affecting the overall utilization rate. While others see traditional methods as more effective than the orthodox methods, others recognise the traditional method as an indigenous approach and widely known by all and has been used with age with ancestral blessings. Linjewile–Marealle (2017) also observed this emphasising that even with mild symptoms people prefer to self - medicate or consult herbalists and would only go to the oral health care centre if the situation worsened, mostly presenting in advanced stages that require extraction.

The use of salt solution was also mentioned as a common traditional method adopted by some of the people who had dental issues to relieve them of pain during the early stages of dental diseases.

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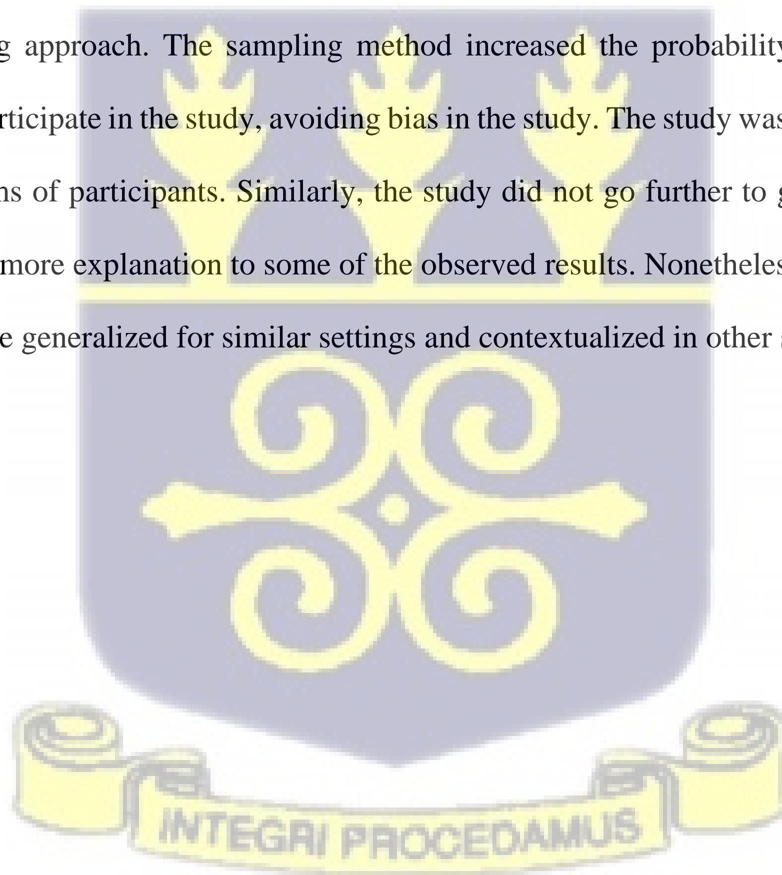
The importance of traditional medicine cannot be overemphasised (Megersa et al., 2019), however, it is important to conduct an assessment or diagnosis of the prevailing condition of the teeth. Herbalists are unable to conduct these assessments to ascertain the level of decay or problem with the teeth and recommend measures for treating it.

5.4 Strength and Limitations of the study

The study adopted a cross-sectional approach to study which is essential for allowing for comparing different variables and its association with an outcome variable at the same time. Different variables of predisposing, need and enabling factors were compared at the same time with the use of oral health. The use of the quantitative method included the use of a multi-staged sampling approach. The sampling method increased the probability of selecting an individual to participate in the study, avoiding bias in the study. The study was however limited in scope in terms of participants. Similarly, the study did not go further to gather qualitative data to provide more explanation to some of the observed results. Nonetheless, the findings in this study can be generalized for similar settings and contextualized in other studies.



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CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Awareness on oral health services was widely known by the respondents in the KEEA municipality. The available dental facility in the municipality was well known by the respondents. Additionally, a majority of the people had visited the dental facility at least once in their lifetime. However, less than a quarter met the WHO standard of oral health utilization of at least two visits within a year (one in every six months). The three most common oral health problems that were reported at the facility included toothache, gum disease and painful swelling.

The use of oral health services in the municipality was determined by all the three Anderson model factors, i.e., enabling, need and predisposing factors. The predisposing factors that had significant association with oral health utilization included age and marital status. For enabling factors, three variables, distance to nearest dental facility, waiting time at the facility and mode of payment for oral health services, were the main factors that influenced the use of oral health services. Under the need factors, the fear of pain and the use of traditional methods for treatment were the main factors that influenced the use of oral health services in the municipality.

6.2 Recommendations

The study makes the following recommendation in reference to the findings on the utilization of oral health services in the municipality.

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Public Health/Clinical Practice:

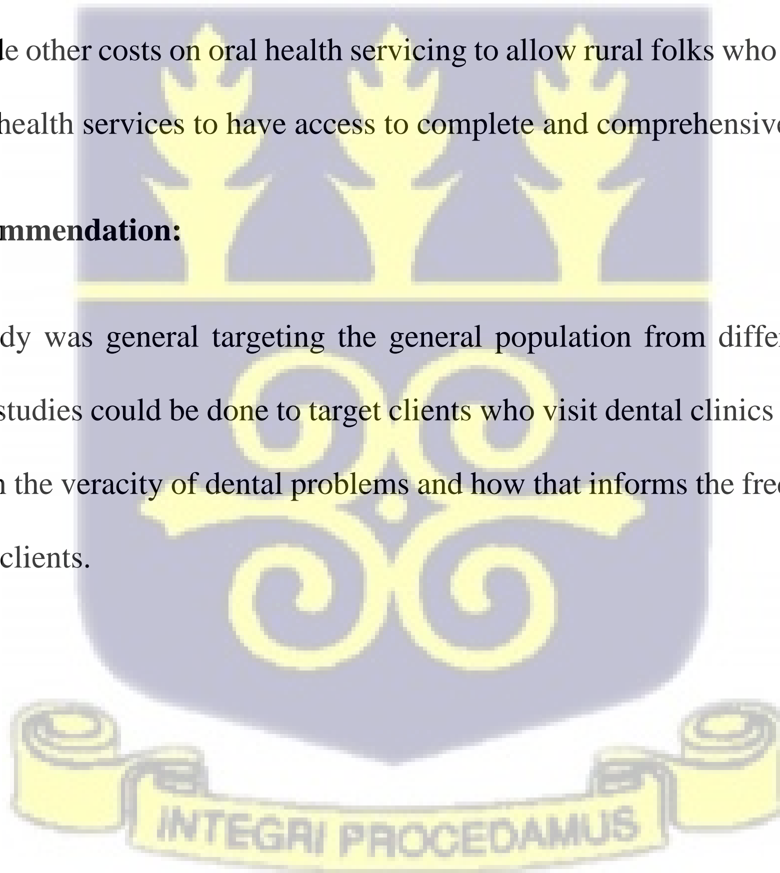
1. Despite the high number of people visiting the dental facility for at least one service, few followed up to get further services as recommended. It is therefore important for health workers who provide oral health services to provide constant education and create awareness on the need for oral health services as per the recommended timelines.
2. Waiting time at the dental facility should be managed such that clients who visit dental health facilities do not waste a lot of time in seeking oral health services.

Policy Recommendation:

3. Government policy on the National Health Insurance programme should be reviewed to include other costs on oral health servicing to allow rural folks who are unable to pay for oral health services to have access to complete and comprehensive care.

Research Recommendation:

4. This study was general targeting the general population from different categories. Further studies could be done to target clients who visit dental clinics for treatment to ascertain the veracity of dental problems and how that informs the frequency of visits by such clients.



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UNIVERSITY OF GHANA

Appendix A: PARTICIPANT INFORMATION SHEET

Title of Study: Factors Influencing Utilization of Oral Healthcare Services among Households in the KEEA District

Introduction :

I am Jennifer Tete, A student of the University of Ghana School of Public Health pursuing a Masters of Public Health Program. I work with Align Technology, Sub-Saharan Africa.

My phone number is 0540480390 and email address : kyekye.tete@gmail.com

Background and Purpose of Research

This research is in partial fulfillment of the requirement for the award of Master of Public Health Degree. The research seeks to assess factors influencing utilization of oral healthcare services among households in the KEEA District. The population of interest involves all adult residents in the KEEA district. The rationale is for the adult population in the KEEA district to respond with what enablers are barriers they have to assessing and utilizing oral healthcare services.

Nature of Research

This study will be using a cross-sectional design and a quantitative method to collect data from the adult residents on their individual (socio-demographic characteristics) factors, enabling factors and need factors that influence the utilization of oral health services. The questionnaire administration will last for not more than 15 minutes per participant. There will be about 308 participants involved. The period for the entire research will last for 6 weeks starting from April, 2022.

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Benefits of the Study

You will have no direct benefit from participating in the study. You will not receive payment for participating. However, the results of this study will be an added value for all stakeholders to contribute to the development of an oral health policy that will improve access to oral healthcare in underserved areas.

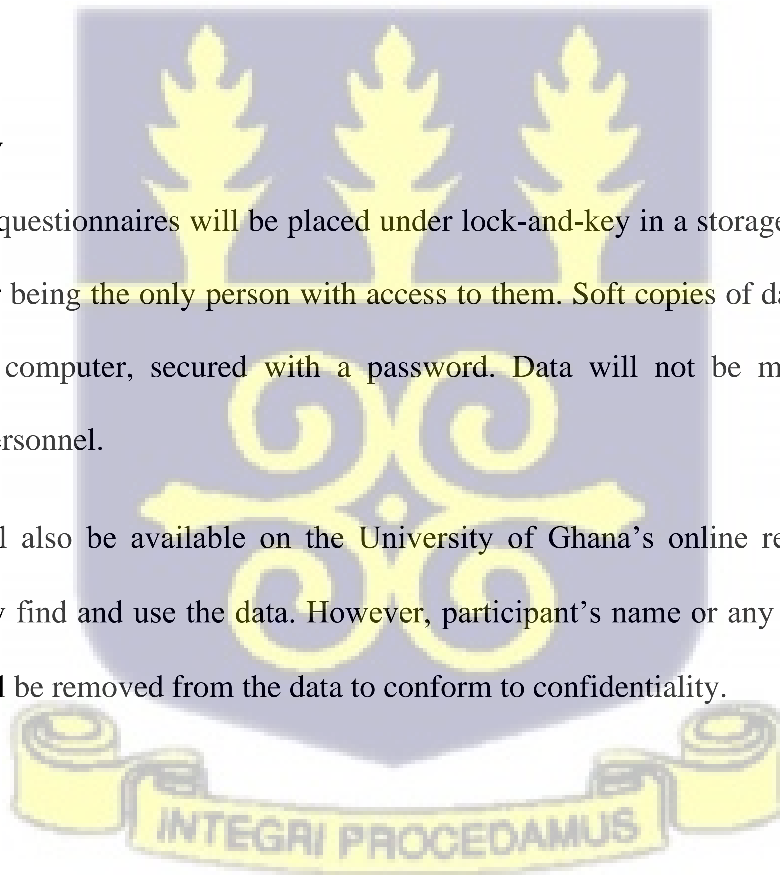
Risk of the Study

There are no direct risks associated with this study except that, participants may share some personal or confidential information or they may feel uncomfortable talking about some of the issues outlined.

Confidentiality

Hard copies of questionnaires will be placed under lock-and-key in a storage drawer with the main researcher being the only person with access to them. Soft copies of data will be stored in a file on a computer, secured with a password. Data will not be made available to unauthorized personnel.

The results will also be available on the University of Ghana's online repository. Other researchers may find and use the data. However, participant's name or any other identifying information will be removed from the data to conform to confidentiality.



Compensation

There will be no compensation packages for respondents or participants, except the benefits to be derived as stated above.

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Withdrawal from the Study

Respondents will not be coerced to participate in the study nor follow through with it after commencement. They will be made to know that they reserve the right to withdraw from the study at any point if they so wish without any penalty.

Participants can decide not to participate or to respond to any individual question or all the questions. Participants will be reliably informed, in a timely manner on any available information provided when need be for their continuation or withdrawal.

Funding of Study

This study is funded solely by me, Jennifer Tete, the principal Investigator, and I declare that it is for educational purpose only.

Provision of Information and Consent for participants

A copy of the Information sheet and Consent form will be given to you after it has been signed or thumb-printed to keep.

Who to Contact for Further Clarification/Questions:

Contact:

1. Jennifer Tete University of Ghana
   School of Public Health
   Kyekye.tete@gmail.com; 0540480390
2. Nana Abena Apatu,
   Administrator, GHS-ERC
   0503539896
   ethics.research@ghsmail.org

INTEGRI PROCEDAMUS

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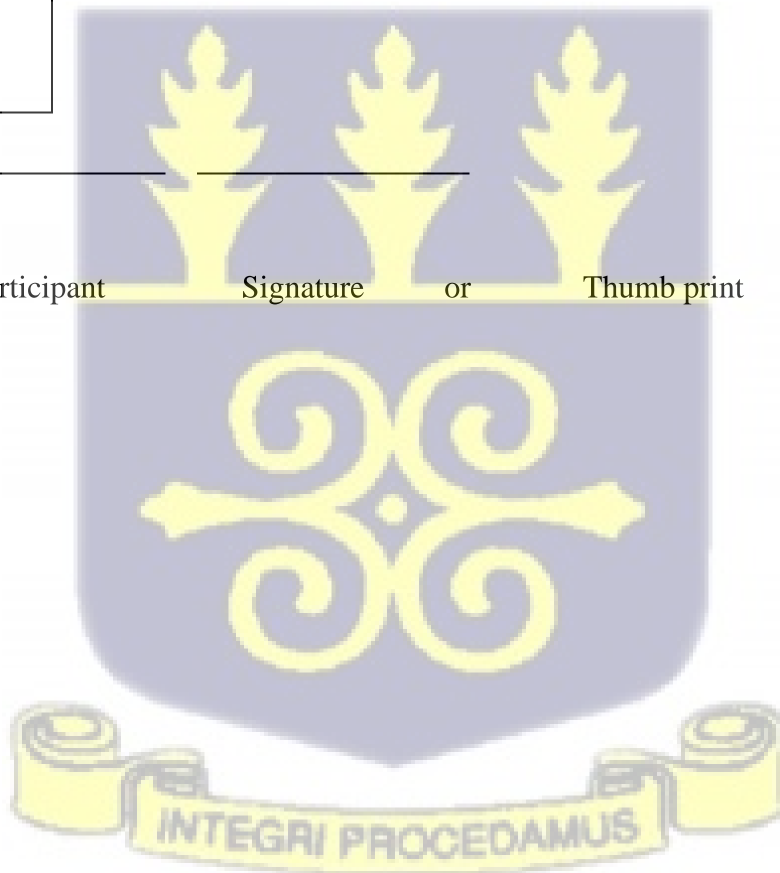
APPENDIX B: CONSENT FORM

PART I: PARTICIPANTS' CONSENT FORM

I have been invited to participate in research on "Factors Influencing Utilization of Oral Healthcare Services among Households in the KEEA District". The document describing the nature and purpose as well as risks and benefits of the study has been read and explained to me in a language I understand (English or Fante). I have been given an opportunity to have any questions about the study answered to my satisfaction and I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form. I agree voluntarily to participate in this study.



_______________________ _________________ __________

Full name of participant Signature or Thumb print Date

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APPENDIX C :INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the afore named participant to the best of my ability in the Fante language to his/her proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter……………………………

Signature of Interpreter……………………….. OR Thumb Print ………...........................

Date:………………………

Contact Details

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APPENDIX D: DECLARATION BY WITNESS (IF PARTICIPANT CANNOT READ BY HIM/HERSELF)

I was present while the benefits, risks and nature and purpose of the study were read to the participant. All questions were answered and the participant has agreed voluntarily to take part in the study.

__________________ __________________ __________

Full name of participant Signature or Thumb print Date

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APPENDIX E: RESEARCHERS SIGNATURE COLUMN

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this study have been explained to the above individual to the best of my ability. I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the consent has been given freely and voluntarily.

_______________________ __________________________ ____________________

Name of researcher Signature Date

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APPENDIX F: QUESTIONNAIRE

TOPIC: FACTORS INFLUENCING UTILIZATION OF ORAL HEALTHCARE SERVICES AMONG ADULT RESIDENTS IN THE KEEA DISTRICT.

Introduction

This research is meant for academic purposes. The aim of the study is to determine factors influencing utilization of oral healthcare services among adult residents in the KEEA District.

You are kindly requested to provide answers to these questions as honestly and precisely as possible. Responses to these questions will be treated as confidential.

DATE:		
	Questions	Response
	Respondents ID	☐☐☐☐
SECTION ONE (DEMOGRAPHIC INFORMATION)		
1.	Age (as at last birthday)	☐☐
2.	Sex 1. Male 2. Female	☐
3.	What is your marital status? 1. Single 2. Married 3. Separated 4. Divorced 5. Co-habiting 6. Widowed	☐
4.	What is your educational level? 1. No education 2. Primary 3. Junior high/middle school 4. Senior High/Technical/Vocational 5. Tertiary	☐

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5.	What is your occupation? 1. Unemployed 2. Fishing 3. Agriculture 4. Trading 5. Salt winning 6. Private sector 7. Civil/Public service 8. Clerical 9. Skilled manual 10. Unskilled manual 11. Others, specify	
6.	What is your monthly income?	
7.	What is your religious affiliation? 1. Christian 2. Muslim 3. Traditionalist 4. Other specify	

	SECTION TWO (**Enabling Factors)**	
	Knowledge of Availability	
8	Do you know of the existing dental facility in the district? 1. Yes 2. No	
9	Have you ever visited the dental facility in the district? 1. Yes 2. No	
	Accessibility	
10	What is the distance to the nearest dental facility you have attended? (In kilometres)	
11.	How long does it take to reach the nearest dental facility you have attended? (In hours or minutes)	

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12.	What means of transport is used to get to the nearest dental facility? 1. Walking 2. Public Transport 3. Private transport	☐
	Affordability	
13.	Are you able to pay for dental services? 1. Yes 2. No 3. Sometimes	☐
14.	By what means do you pay for services? 1. NHIS 2. Private Insurance 3. Out of pocket 4 . Insurance and out-of-pocket	☐

15.	How much do you pay out-of-pocket for dental services?	Gh¢.........................
16.	What type of services do you pay for out-of pocket? 1. Consultation 2. Diagnosis 3. Treatment (procedure performed) 4. Review 5. Post-operative procedures 6. Others, please specify	☐
17.	How much premium do you pay for health insurance (Private or NHIS?)	Gh¢...
Oral Health Literacy		
18.	What was your source of information on dental care? 1. Friends and Relatives 2. During a visit to health institution 3. Media 4. Others, please specify	☐

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19.	What are some of the benefits of routine dental care? Can choose more than one answer 1. Improves oral hygiene 2. Reduces dental caries 3. Prevents dental complications 4. Prevents mouth odor 5. I do not think routine dental care has any benefits 6. Others, please specify.	
20.	What are some of the consequences of untreated oral disease conditions? (Can choose more than one answer) 1. Heart disease 2. Blindness 3. Chronic pain 4. Facial deformities	
	5. Death 6. No consequences 7. I do not know 8. Others, please specify	
Health Facility Factors		
21.	Is the hospital environment clean? 1. Yes 2. No	
22.	Are the staff friendly, humane and with good communication skills? 1. Yes 2. No	
23.	What is the average waiting time for a patient to be fully attended to? (in minutes or hours)	

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24.	Do the nurses and doctors explain conditions and procedures adequately to your understanding? 1. Yes 2. No	☐
25a.	Have you suffered any post-operative complications of any dental treatment? 1. Yes 2. No	☐
25b.	If yes, what post-operative complication was it? 1. Pain 2. Bleeding 3. Swelling 4. Infection 5. Other, please specify	☐
26.	Will you recommend professional dental care in a dental facility to anyone? 1. Yes 2. No	☐
Section Three (Need Factors)		
27a.	Did you decide to visit the dental facility by **yourself**? 1. Yes 2. No	☐
27b.	If no, who informed your decision to visit the dental clinic? 1. Relatives 2. Friends 3. Others, please specify	☐
28.	What condition did you report to the facility with? 1. Bad breath 2. Broken teeth 3. Gum disease 4. Toothache 5. Painful swelling 6. Missing teeth 7. Mouth sore 8. Painless	☐

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	9. swelling	
29.	How long have you had this condition? 1. less than 3 weeks 2. more than 3 weeks	
30.	What type of treatment did you receive? 1. Cleaning 2. Dentures 3. Extraction 4. Filling 5. Medication 6. others, specify	
31.	Do you have any fear of pain during dental treatment? 1. Yes 2. No	
32.	Do you use any other traditional means other than orthodox to manage your dental conditions? 1. Yes 2. No	
33.	If yes, indicate what traditional means of management of dental conditions a. Concoctions or herbal preparations b. Do not use anything c. Others, specify	
SECTION 4 (Utilization of Dental Services)		
34	What is the number of dental visits expected of an individual in a year? 1. Once 2. Twice (6 monthly) 3. Once in a lifetime 4. Others, please specify	
35	Have you ever visited any facility for dental services in the past year? 1. Yes 2. No	

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36	How many times have you visited the dental clinic in the past year?	
37	What factors will influence your decision to visit a dental facility? You can choose more than one answer 1. Acute pain 2. Chronic dental condition 3. Clean hospital environment 4. Friendly staff attitude 5. Knowledge and capability of staff 6. Awareness of importance of dental hygiene 7. Routine dental check-up 8. Others, please specify	
38	What factors will influence your decision **not to** visit a dental facility? You can choose more than one answer 1. Fear 2. Cost 3. Shyness 4. Distance to facility 5. Poor attitude of staff 6. Unfriendly hospital environment 7. Others, please specify	

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APPENDIX G: ETHICAL CLEARANCE APPROVAL

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted

My Ref. GHS/RDD/ERC/Admin/App /22/081
Your Ref. No.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Digital Address: GA-050-3303
Mob: +233-50-3539896
Tel: +233-302-681109
Email: ethics.research@ghsmail.org
8th March, 2022

Jennifer Tete
P.O. Box KF 2571, Koforidua

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	**GHS-ERC: 030/02/22**
Study Title	Factors Influencing Utilization of Oral Healthcare Services Among Adult Residents in the Komenda-Edina Eguafo-Abirem(KEEA) District
Approval Date	8th March, 2022
Expiry Date	7th March, 2023
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

- Submission of a yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report after completion of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

You are kindly advised to adhere to the national guidelines or protocols on the prevention of COVID -19

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.......................................
Dr. James Akazili
(Head, Ethics & Research Management Department)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra

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