WOLKITEUNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCE

ASSESSMENT OF ORAL HYGIENE PRACTICE AMONG DIABETIC PATIENTS IN SELECTED GOVERNMENTAL HOSPITAL S OF GURAGE ZONE, SOUTH ETHIOPIA, 2021

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A RESEARCH PAPER TO BE SUBMITTED TO DEPARTMENT OF NURSING COLLEGE OF MEDICINE AND HEALTH SCIENCE WOLKITE UNIVERSITY FOR THE PARTIAL FULFILMENT OF THE REQUIREMENTS OF BACHELOR OF SCIENCE DEGREE IN NURSING

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Examiners' approval sheet

We, the undersigned, members of the Board of Examiners of the final open defense by _____(Chairperson) have read and evaluated his/her thesis entitled "ASSESSMENT OF ORAL HYGINE PRACTICE AMONG DIABETIC PATIENTS IN SELECTED GOVERNMENTAL HOSPITAL OF GURAGE ZONE, SOUTH ETHIOPIA", and examined the candidate.

This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the degree.

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Final approval and acceptance of the thesis is contingent upon the submission of the final copy of the thesis to the School of Graduate Studies (SGS) through the Department/School Graduate Committee (DGC/SGC) of the candidate's department.

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List of abbreviations and acronyms

BGH	Butajira General Hospital
DM	Diabetes Mellitus
GZHD	Gurage Zone Health Department
HbA1c	Hemoglobin A1c
IDF	International diabetes federation
SPSS	Statistical Package for Social Science
TIDM	TYPE 1 Diabetes Mellitus
TIIDM	TYPE2 Diabetes Mellitus
WHO	World Health Organization
WKU	Wolkite University

Table of Contents

List of

List of figures

ABSTRACT

Background: Diabetes is a group of metabolic disorders that affect the body's ability to process and use sugar (glucose) for energy. The success of long-term maintenance therapy for diabetes depends largely on the patients' adherence with self-care practices

People with uncontrolled diabetes are at a greater risk for several oral health problems, particularly periodontal (gum) disease. Good oral hygiene and regular dental visits are recommended to prevent and manage oral health problems. Even if, proper oral hygiene is important aspects of self-care practice for diabetic patient, there has been little evidence in Ethiopia, particularly in Guragezone,on its level of practice and factors that hinder its implementation. Thereforethe aim of this study wasto assess the oral hygiene practice of diabetes patients in gurage zone.

Objective: To assess magnitude of oral hygiene practice among Diabetic patients in Gurage zone Governmental Hospitals,2021.

Methods: An institutional based cross sectional study was conducted from July 1/2013 to 30/2013 E.C and a data was collected from 404 diabetic patients in Wolkite university specialized Hospital, Butajira Generalized Hospital and Gunchire district hospital.Pre-tested and structured questioners was used to collect the data. Data was interred and analyzed on statistical package for social science (SPSS) version 25..

Result: A total of 404(100% respondent rate) adult diabetic patient were participated. Among the study participants most of them 297(73.5%) were marred, 217(53.7%) of them rural residence,229 (56.7%) of them gurage in ethinicity, 345(85.4%)of them have family income above 1500 ETB,336(83.2%) of them were type 2 DM patients.

More than one thired of the respondents 175(43.3%) poor oral hygiene knowledge,330(81.7%%) know that keeping oral hygiene is important for health,273(67.6%) knows cleaning teeth prevents tooth decay,172(42.6) knows failure to clean teeth worsen diabetes and more than half of the respondents 187(46.2%) have poor oral hygiene practice

Conclusion: In our study area oral hygiene practice of the study subject were poor in which more than one third of the participant had poor oral hygiene practice, therefore a community level education to enhance public awareness about oral health is necessary.

Key words: Magnitude, oral hygiene practice, diabetes, Ethiopia.

CHAPTOR ONE: INTRODUCTION

1.1. Background

Diabetes is a complex multi-systemic endocrine and metabolic disorder that is prevalent in most populations. It results in acute or chronic disorders due to absolute or relative insulin deficiency, and or resistance to the metabolic action of insulin on target tissues [1]. According to the WHO classification, there are two main categories of diabetes: typel, formally insulin dependent and type2, formally non- insulin dependent; which is the most common type. Another type of diabetes is gestational diabetes, 'where glucose intolerance occurs during pregnancy. Complications of the disease include: Microangopathy, retinopathy and arteriosclerosis [2].

Type I diabetes has a rapid onset which includes the classical triad: polyphagia, polydipsia and polyuria. Other symptoms include: weight loss, irritability, drowsiness and fatigue. Type 2 diabetes is less insidious and non- specific, without the classical triad. Patients may be obese and have pruritus, peripheral neuropathy and blurred vision. Opportunistic infections including oral and vaginal candidiasis may be present. Patients with both types of diabetes are prone to severe and recurrent oral infections of bacterial and fungal origin, especially if they are poorly controlled, Other oral manifestations of diabetes are: burning mouth, loss of taste, salivary, gland enlargement, candidiasis, dental canes, gingivitis, periodontitis, neurosensory, leukoplakia and taste dysfunction [3].

Oral hygiene practices generally aim at the removal of plaque and killing of plaque bacteria which are the cause of periodontitis, dental caries and halitosis. The daily use of a toothbrush and other oral hygiene aids is the most dependable way of achieving oral health benefits for most people. The goal of oral hygiene is the physical and chemical disruption of the biofilm on a frequent basis. A variety of devices and techniques have been used in this pursuit, from the simple toothbrush and home irrigation systems to sophisticated electromechanical devices. Tooth brushing alone is not sufficient in plaque control because periodontal lesions are predominantly found in the proximal locations. Plaque control efforts must include improved brushing, and cleaning proximal tooth surfaces with devices such as dental floss. Chemical inhibitors of plaque and calculus also play an important role [4].

1.2. Statement of the problem

Globally 4.6 million deaths attributed to diabetes mellitus occurr annually. About 366 million people had DM, most of which were type 2 DM (90%) and found in low- and middle-income countries.8 By the year 1994, the Centre for Disease Control and Preventions (CDC) declared DM as an epidemic in the US.9 Periodontal disease and DM share common risk factors and bidirectional relationships.3,5 The global burden of oral disease is predominantly periodontal disease, ranging from 20–50%6 and is the most common complication of diabetes.10 The estimated prevalence of diabetes in Ethiopia ranges from 2–5% nationally.11 Evidence suggests that its prevalence could be greater than 5% in people older than 40 years of age.

The link between diabetes and oral health is highly blood sugar (hyperglycemias). This is because uncontrolled diabetes weakens white blood cell, which are the bodies main defence against bacterial infection that can occur in the mouth. Just have studies show that controlling blood sugar levels lower the risk of major organ complications of diabetes, such as eye, heart, and nerve damage, so to can diabetes protect against the development of oral health problem. Hyperglycaemia can cause several complications related to different organ systems especially the eyes, kidneys, nerves, heart, and blood vessels [1]. Although not commonly discussed in diabetes care, people with uncontrolled diabetes are also at increased risk of developing oral health problems, particularly periodontal (gum) disease [3]. Periodontal disease, which includes both gingivitis

and periodontitis, is a common inflammatory disorder caused by pathogenic micro flora in the bio film that forms adjacent to the teeth on a daily basis [4]. Gingivitis is the mildest form of periodontal disease in which inflammation is confined to the gingiva, and can be reversible with effective oral hygiene while periodontitis is the advanced stage where the inflammation extends deep into the tissues and causes loss of supporting connective tissue and alveolar bone [4]. Tissue destruction in periodontitis results in breakdown of collagen fibres of the periodontal ligament and leads to the formation of periodontal pockets between the gingiva and the tooth. Periodontitis is a slowly progressing disease but the tissue destruction is largely irreversible [4, 5]. Further, the bacteria located within the periodontal pockets are pathogenic and highly inflammatory with some having the ability to survive in the blood stream and infect other areas of the body [12]. Moderate periodontitis affects approximately 40–60% of the adults worldwide [13].

An oral hygiene is maintaining cleanness of mouth and taking care of teeth and gum [14]. A good oral hygiene practice promotes better oral health and general health of person [15]. A poor oral hygiene is associated with dental caries, gingivitis, periodontal diseases, bad breath, respiratory diseases, cardiovascular diseases, and chronic kidney diseases [16]. Moreover, a poor oral health has a psychosocial impact that diminishes quality of life and restricts activities in school and at work and home [17]. Periodontal disease and dental caries are the major problems of the world. About 3.9 billion people of the world were affected by burdens of oral conditions. The study in India [18] depicted that the knowledge regarding oral health was low.

Another study in Qatar[19] revealed that 40% of the study respondents were found having poor oral status. Similarly, the study in Pakistan showed that practice of respondents about oral hygiene was poor [20]. Oral diseases are the major public health problem of African region [21]. African regions carry a major burden of oral health problems because of this oral disease is one of the prioritized non communicable diseases[22].The burden of an oral disease in low economic communities is noticeable [21]. The challenges of responding to an oral health are prominent in developing communities. A disability and death related with a poor oral condition in East Sub-Saharan Africa was significantly higher than other Sub-Saharan African countries[23].A studyin Nigeria[24] revealed that there was a poororal health knowledge among adult Nigerians. Rural residence and poor knowledge were associated with poor oral hygiene practice [14]. On the other, the study in Qatar [19], Eastern India [25], and Addis Ababa [26] revealed that being female, urban residence, educational status secondary and above, and adequate knowledge were associated with better oral hygiene practice. The study in Addis Ababa [27] reported that the prevalence of periodontal diseases and dental caries was high 35.4% and 47.4%, respectively. About 87.7% of the respondents clean their teeth once or more in a day and only 23.2% respondents reported as they floss their teeth [26]. Moreover, the studies in Addis Ababa [26, 27] depicted that the practice of tooth brushing was low. There are a few studies in Ethiopia that address about an oral hygiene practice with a limited geographic coverage.

Knowledge, attitude and oral hygiene practices among diabetics have been known to affect the severity and progression of oral diseases. According to a Nigerian study [13] majority of diabetics don't know that factors in diabetes can contribute to oral ill health and most importantly quite a number of diabetics were not aware of the need for glycaemia control to prevent oral infections and given that more than 120 million people in the world suffer from diabetes, there is a clear need for integration of oral health care into the overall care of diabetics as well as involvement of dental professionals in diagnosing and managing of patients. This requires laying down or establishing tangible oral health information on diabetic.

Considering the impact of periodontal disease on diabetes and benefits of good oral health practices to minimise the risk of periodontal disease, it is important to ensure that people with

diabetes are motivated to engage in good oral hygiene behaviours and are provided risk assessment and dental referrals as a part of routine diabetes care [28]. Several studies conducted worldwide have assessed the knowledge, attitude and practices of people with diabetes relating to oral health care, however, synthesis of these results has not yet been undertaken. Conducting such a review is important as adequate oral health knowledge or literacy is positively associated with good oral health behaviours such as, increased frequency of brushing and dental visits and good periodontal health [29]. Further, oral health behaviours are influenced by the social determinants of health. Those who are disadvantaged or from lower socio economic groups often have unhealthy habits, poor knowledge and attitudes to oral health and uptake of dental services and therefore are more likely to suffer from the burden of oral disease [30].

Thus, the aim of this study was to synthesize current evidence on oral hygiene practice of diabetic patients in gurage zone governmental hospitals.

1.2. Significance of the study

Local evidences on magnitude of oral hygiene practice of diabetic behaviour adherence are limited in gurage zone governmental hospitals. Points influencing oral hygiene practice behaviour have not been studied so far in the study area and studies conducted elsewhere in Ethiopia could not be used to infer about diabetic patients in the study area, as these differ in cultures and life style. Therefore, to address these discrepancies, this studys provide valuable information on level of oral hygiene practice among diabetic patients attending at selected governmental hospital and hopefully, this work will identify components of oral hygiene practice behaviours.

Hence; this study contributes to the scientific body of knowledge (for policy makers, health planners and departments at different level) in general and it specifically provide necessary information for healthcare providers and diabetic patients in the Hospital to formulate relevant policies and develop evidence based intervention strategies to improve oral hygiene practice of diabetes patients and prevent or delay/reduce risks of diabetic related complications and deaths in the study area in particular and at regional, national and international level at large.

Furthermore, this study can be used as a baseline for further researches of the same objectives; serve as an input for further study.

CHAPTER TWO: LITRACHER REVIEW

2.1. Oral hygiene practice among DM patients

Several studies have shown that diabetic patients are at a greater risk of developing oral health problems than non-diabetics. The study conducted at Saudi Arabia aimed to evaluate the oral hygiene practices of adult diabetic patients and their awareness of oral health problems related to the disease in 2017 showed that 45.6% of the respondents brush their teeth once daily, 10.4% floss once daily, and only 11.5% use mouthwash regularly. Regarding patients' awareness, the majority (81%) are aware that diabetes may increase the risk of oral health problems; 75.9% are aware that diabetes may increase the risk for periodontal problems including gum bleeding and teeth mobility and 36.3% are aware that diabetes may reduce salivary flow.

A study from Finland showed that almost all of participants (95%) were receptive to receive advice on oral health [34] from diabetes care providers. However, less than one third of participants (31%) from another study also stated that any oral health information provided would not affect their oral hygiene behaviours and dental checkups routines [34]. Similarly, some participants (41%) in a study conducted in India also preferred to consult physicians for oral problems [33].

Additional research shows that patients with diabetes have increased tooth loss[35,36] most likely due to multiple causes, such as increased periodontal disease and caries, as well as delayed wound healing due to macro vascular and micro vascular changes and taste alterations.[10] Other

neuro sensory disorders, like dysphasia and burning mouth syndrome, have been reported and could be related to salivary flow, change in food intake and neuropathy.

A study conducted in Addis Ababa, student of medhanalem high school revealed that 62.8% of the respondents had a poor knowledge with regard to oral hygiene,[42] about half (52.1%) of the student had negative attitude towards oral hygiene, and their oral hygiene practice were still low that 60.4% of the student reported inadequate practice.

A study conducted in Jimma University about knowledge and oral health behaviour among health science students [43] about 57.6% males and 52.5% females scored highly in knowledge of caries. The corresponding rates regarding the knowledge of gingivitis were 49% and 44% respectively. Tooth brushing and the use of mefakia (chewing stick) ≤2 times a day was confirmed by 56.8% males and 58.2% females and by 74.8% males and 62.8% females, respectively. Awareness of oral health issues is high, but specific misconceptions exist. There is gender equality in knowledge and practice of oral hygiene among health sciences students. Mefakia chewing stick was equally used with toothbrush for oral hygiene practice [43].

A study conducted in Hawasa private dental clinks from 393 study participants(39.9%)of the study participants had poor oral hygienic practice and poor knowledge about oral hygiene (AOR: 2.38, 95% CI: (1.402, 4.024))were independently associated to poor oral hygienic practice [26].More than one-third of the study participants had poor oral hygienic practice. Providing health information regarding oral hygiene for the patients/clients in the facilities with a special focus from rural areas is recommended.

A survey conducted in Malaysia revealed that half (51%) of the people with diabetes believed teeth problems were not serious and this belief was one of the main reasons behind refusing a dental referral [37]. A number of reasons were highlighted by participants for not having regular dental visits, the most notable being the cost of dental care, lack of need for oral health care, absence of dental problems, unpleasant dental visits and difficulty in scheduling an appointment [38]. The cost of dental care was the main underlying reason behind lower dental visits in studies from high income countries [38] while the perceived lack of necessity, discomfort and fear of oral health care were the main reasons for the participants from low income countries [37].

Generally, participants from low income countries had a tendency to see the dentist for urgent treatments only [33]. Similarly, a study conducted in Ireland reported that 32% of the participants would choose to save a painful posterior tooth [39]

The low perceived need for dental care among participants was also attributed to their lack of oral health knowledge and information [34]. Nearly half of the participants (45%) from a study conducted in Pakistan stated that they would engage in more positive oral health practices if they were informed about the risks and consequences of poor oral health [34].

In a Survey of Attitude toward Oral Health in Japan, 95% of the subjects brushed their teeth at least once daily. 72.6% of subjects brushed their teeth twice a day in the morning and at night. Most of the subjects had made dental visits and 91% of them had visited dentists for the purpose of caries treatment [40]

A study conducted in Norway, where dental care is accessible and free for adolescents, the rates of adolescent dental avoidance may be as high as 12% or greater, and appear to increase from age 12 to 18. Adolescents who do not have regular dental visits have significantly more caries than their peers. For example, a study of Norwegian adolescents (for whom access was not a barrier) found that 16.4% of those who failed to visit the dentist had decayed, missing, and filled teeth (DMFT) scores more than one standard deviation above the mean, compared with 3.3% ofnon-avoiders[41]

According to a Nigerian study (5) majority of diabetics don't know that factors in diabetes can contribute to oral ill health and most importantly quite a number of diabetics were not aware of the need for glycaemic control to prevent oral infections.

CHAPTER THREE: OBJECTIVE

3.1. General objectives

- To assess magnitude of oral hygiene practice among diabetic patients in selected governmental hospitals of gurage zone, Ethiopia, 2021

3.2. Specific objectives

- To assess magnitude of oral hygiene practice among DM patients in selected governmental hospitals of gurage zone.

CHAPTER FOUR: METHODS AND MATERIALS

4.1. Study area and period

The study was conducted from July 1-30/2021 in Gurage zone at selected governmental hospitals. Gurage zone is located in the southern nation nationality of people regional states (SNNPR)of Ethiopia which is to the southern part of Addis Ababa. According to the national central statistical agency 2007 report, Gurage zone has a total population of 1,577,074, of which 763,643 (48.4%) were males and 813,431 (51.6%) were females.. In gurage zone there are four

district governmental hospitals (gunchire, buie, kuante and mehalamba district hospitals),one general hospital (butajira general hospital) and one specialised hospital(WKUSH).

The study area were conducted at; WKUSH,BGH and GPH that were selected by lottery methods. Wolkite is the capital town of gurage zone district, which is located 158 km from Addis Ababa on the main roads of Jimma and 167 km through Southern Nations nationalities and people regional state (SNNPRS) Hwassa. In wolkite there is one specialized hospital which is located in gubire sub-city, eastern gurage zone district 14 km western direction of wolkit town. The hospital was established in 2011 E.C and provide multi-dimensional aspects of care including preventive, promotive and rehabilitative services in collaborative with its stakeholders around one million populations from wolkite town and the surrounding weredas.. The hospital have 131 beds that gives services for admitted patients and according to 2013 E.C HMIS report of the hospital; there are about 98 registered diabetic patients for follow-up and covers 13.13% (53) of sample size.

Butajira General Hospital is also located in butajira city administrative town, to the South East part of gurage zone which is107 km from Wolkite and 136 km from Addis Ababa.The hospital provides preventive, promotive and rehabilitative services for more than one million peoples particularity for eastern parts of gurage and silte people... Diabetic clinic is one of chronic follow-up clinics run twice weekly (on Tuesday and Thursday). The service is rendered by physician and nurses and According to 2013 E.C HMIS report of the hospital; there are about 397 registered diabetic patients for follow-up and covers 53.21%(215) of sample size.

Gunchire is a one of the urban towns found in Enemoreworeda. It is around 192 km from the capital city of Ethiopia: Addis Ababa (southwest)301 km from Hawassa, capital of the SNNPR, and 42 km from wolkite. Gunchire primary hospital is found in the gunchire town. The hospital was established 2006 E.C (2014 G.C) by expansion & renovation of a pre-existing health center. The hospitalprovides multi-dimensional aspects of care including preventive, promotive, curative & rehabilitative services in collaboration with its stakeholders for around 200,000 population from Gunchire town administration and the surrounding woredas of Guragezone (Rural part of Enemor, Ener and Chehawereda).

. Diabetic clinic is one of such chronic follow-up clinics run twice weekly (onTuesday and Thursday). The service is rendered by physician and nurses and According to 2013 E.C HMIS report of the hospital; there are about 251 registered diabetic patients for follow-up and covers 33.6%(136) sample size.

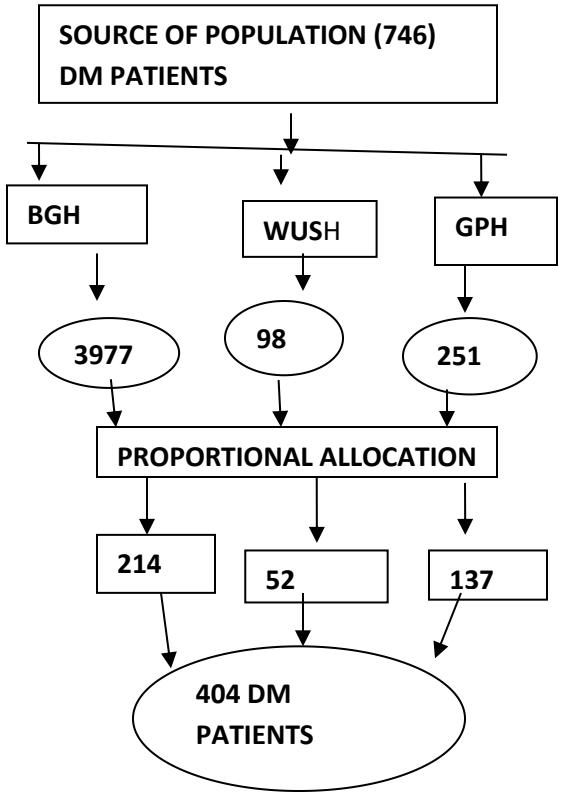

Figure 1 sample frame of study population

4.2. Study design

Institutional based cross sectional study was conducted at selected governmental hospitals of Gurage zone.

4.3. Population

4.3.1. Source population

All adult diabetic patients at gurage zone governmental hospitals.

4.3.2. Study population

The study populations are all Diabetic patients who visit the selected gurage zone governmental hospitals during data collection period.

4.4. Sample size and sampling procedure

4.4.1. Sampling size determination

The minimum required sample size to conduct this study was calculated by using single proportion formula and 39.9%(0.399) proportion of oral hygiene practice who did not had good oral hygiene practice was taken from similar study done in Hawasa city, southern Ethiopia with 95% level of confidence and 5% margin of error and assuming 10% non-respondent rate.

The required sample was calculated using the following formula:

$$n = Za^2\ p\ (1-p) / d^2$$

Where,

n= required minimum sample size

Za= z-score value corresponding to 95% level of confidence=1.96

p= estimated population proportion=60.1%

d= allowable margins of error=0.05

$n = Za^2 p (1-p) / d^2$

$n= (1.96)^2 (0.601) (1-0.601) / (0.05)^2$

$n = (3.84) (0.601) (0.399)/0.0025$

$n=368.331$

Adding a 10% non-response rate, 36

nf = 368+36= 404,so the required sample size was 404

4.4.2. Sampling procedure

Multi stage sampling method was used to select the study Hospitals. Study hospitals were selected using lottery methods. The hospital endocrinology unit has two clinics visit every week for patients with diabetes and average number of patients attending the clinic in one month was estimated in each hospital. The first eligible study subject was selected randomly. Then every other eligible patient visiting the clinic during the data collection period was interviewed using structured data collection questionnaire until desired sample size was achieved**.**

4.5. Eligibility criteria

4.5.1. Inclusion criteria

- Previously registered (on follow up) including all form of DM patients during the study period.

4.5.2. Exclusion criteria

- Those below the age of 18 years old, diabetic patients with mentally ill, patient with severe illness that will be unable to participate during the study period and patient with total loss of tooth are not included in the study.

4.6. Variables of the study

- Oral hygiene practice (good/poor)
- Socio-demographic characteristics: age, sex, education, employment status, religion, marital status, patient income and ethnic group,
- knowledge's about oral hygiene practice,
- Cognitive variables (individual's knowledge about DM).

4.7. Operational definitions

Good oral hygiene knowledge: corresponds to a score of mean and above for 9 knowledge questions [32]. The mean score for the correct response will be 6 for this study.

Poor oral hygiene knowledge: corresponds to a score of below mean for 9 knowledge questions [32]. The mean score for the correct response will be 6 for this study.

Good oral hygiene practice: corresponds to a score of mean and above for 11 practice questions [32]. And the mean score for the correct response will be 7 for this study.

Poor oral hygiene practice: corresponds to a score of below mean for 11 practice questions [32]. And the mean score for the correct response will be 7 for this study.

4.8. Data collection tool

Data was collected using interviewer-administered questionnaire which was addressed the objective of this study. Before initiation of the data collection process questionnaire was adopted in English by reviewing different literatures, then translated to local language (Amharic) then back translated to English language for its consistency by two different individuals who speak both English and Amharic to keep its consistencies. No names or identifiers were included on the questionnaire.

Data was collected using a pretested structured interviewer-administered questionnaire, which was contain four parts. The first part consist of socio-demographic characteristics (age, occupation, sex, education, marital status, monthly family income, residential status, and religion), the second part consists current health status related questions, the third part knowledge related part of oral hygiene, the fourth part assess practice part of oral hygiene. Knowledge questionnaire consist of nine question out of this question a respondent who answer below 6 question will classify poor knowledge or not knowledgeable, if respondent will answer 6 and above out of nine will classify knowledgeable.

Practice question consist of eleven questions, if the respondent practiced or do only less than seven question will be classified as poor oral hygiene practice, if practiced or answer seven and above questions will be classified as good oral hygiene practice

4.9. Data collection procedure

Data was collected by investigators (three 4th year nursing students) through an interviewer administered pre-tested questionnaires, after taking half day training. The data collection process was supervised by one selected person from the group members who conduct the research. Orientation was given for patients on the protocol and specific details concerning participation in

the study and verbal consent was obtained from each eligible study participant. The respondents was approached and interviewed when they exit at diabetic clinic by considering covid-19 protection protocol like using personal protective equipments sanitizers and by keeping distance.

4.10. Data quality control

To ensure the quality of data, only 4th year nursing student was involved for coordination of data collection process. The Pre-test was carried out on 5% of study subjects and modifications were taken according to the findings. On the days of data collection, the principal investigators were monitor the data collection process by checking for completeness of the data. Data was checked again for completeness before data entry.

4.11. Data processing and analysis

After data collection, each questionnaire was checked for completeness and data will be entered and analyzed using SPSS software version 25 and presented in the form of narrations, percentage, frequency table and graphs.

4.12. Ethical consideration

Ethical approval and clearance was obtained from the Wolkite University Ethical review committee. In addition, written permission was obtained fromthe Medical Director of the selected hospital to conduct the study. Study participants was recruited on a voluntary basis after verbal consent is taken following providing full information about the objective of the study and the confidentiality of the data.

To keep the confidentiality of the study subjects' information, personal identifiers was not included in the data collection format rather a coding was used and all recorded data was kept in a very secure area where only investigators can access to it. The results of the study was disclosed only when it is necessary.

4.13. Data dissemination plan

First, the result of the study was submitted to Nursing department and distributed to wolkite university specialized hospital butajira general hospital, gunchire district hospitals, gurage zone health department (GZHD) and SNNPR Health Bureau.

When deemed necessary it was also be sent and presented to other governmental & non-governmental organizations like Ethiopian diabetic association who are working to improve oral hygiene practice of diabetic patients and prevent or delay/reduce risks of diabetic related complications and deaths in gurage zone, SNNPR Health Bureau and country level at large. It was also be presented in different annual conferences and seminars.

The research results were finally be sent for publication in reputable Journals to facilitate its access and use in different websites.

CHAPTER FIVE: RESULT

5.1. Socio-demographic and economic characteristics

A total 404 study participants were participated with a response rate 100%.Among this 231(57.2%) were male in sex. Majority (73.5%) of the participants were married and the participants educational status showed that 290 (71.8%) had formal education. About 78(268.8%) of participants occupational status were non government employer. About half percent 217(53.7%) of the participants place of residence were rural. Gurage 229 (56.7%) was the predominant ethnic group.

Table \1shows Socio-demographic and economic characteristics of study participants

Variables	Characteristics	Frequencies	Percentages (%)
Age	18-40	193	47.8%
	41-60	171	42.3%
	>61	40	9.9%
Sex	Male	231	57.2%
	Female	173	42.8%
Marital status	Not married	78	19.3%

	Married	297	73.5%
	Divorced	14	3.5%
	Widowed	15	3.7%
Educational status	No formal education	114	28.2%
	Formal education	290	71.8%
Occupational status	Non government	278	68.8%
	Government	126	31.2%
Residence	Urban	187	46.3%
	Rural	217	53.7%
Religion	Orthodox	134	33.2%
	Muslim	168	41.6%
	Protestant	75	18.6%
	Others	27	6.7%
Ethnicity	Gurage	229	56.7%
	Amhara	79	19.6%
	Oromo	42	10.4%
	Others	54	13.4%
Diabetic follow up institution	Butajira Gen. hospital	216	53.5%
	Wolkitespe. hospital	52	12.9%
	Gunchirepri hospital	136	33.7%
Family income	Below 1500	59	14.6%
	Above 1500	345	85.4%

Footnote: N= numbers

5.2. Current health status related factors

Majority of study participants 336(83.2%) in this study were diagnosed with diabetic type two and most of them catagorized under 60 month since dignosed were 268(66.3%). Majority of study participants 291(72.0%) had diabetic clinic follow up every month. About 362(89.6%) participants take anti diabetic medication. More than half 276(68.3%) of the participants had no

decayed tooth and also those who feel as having a bad breath in their mouth or other told by other were 278(68.8). about 310(72.0%) did not experience a gum bleeding and 247(61.1%) did not experience any dental or oral disease respectively(See Table 2).

Table 2 Shows Clinical & life style related factors of the study participant of diabetic patients in selected government hospital, Gurage Zone, Southern Ethiopia, 2021(N = 404)

Variables	Characteristics	Frequencies	Percentages (%)
Type of diabetics	Type 1	59	14.6%
	Type2	336	83.2%
	Gestational	9	2.2%
Categories of duration	<60	268	66.3%
	61-120	96	23.8%
	>121	40	9.9%
Frequency of diabetic clinic follow up	Every month	291	72.0%
	Every two weeks	113	28.0%
Do you take any anti diabetic medication	Yes	362	89.6%
	No	42	10.4%
Do you have any decayed tooth	Yes	128	31.7%
	No	276	68.3%
Do you have a lost or broken tooth	Yes	146	36.1%
	No	258	63.9%
Do you feel as having a bad breath in your mouth	Yes	126	31.2%
	No	278	68.8%
Do you experience a gum bleeding	Yes	94	28.0%
	No	310	72.0%
Do you ever experience any dental or oral disease	Yes	157	38.9%
	No	247	61.1%
During attending the diabetes clinic, have you ever been advised dental check-up?	Yes	154	38.1%
	No	250	61.1%

Footnote: N= numbers

5.3 Knowledge status related factors

According to this study majority 330(81.7%) of study participant assumed that keeping oral hygiene was important for their health and about 273(67.6%) of the participant know that cleaning teeth prevents tooth decay. About half 214(53.0%) of study participants knows cleaning teeth prevents bleeding of gums. Majority 300(74.3) of study participants assumed that eating sweefoods like candy, biscuit and others causes dental caries and about 266(65.8%) of the participants thought that diabetes worsen oral diseases, like gum disease(See Table 3).

Table 3: Knowledge of health status of oral hygiene practice of diabetic patients in selected government hospital, Gurage Zone, Southern Ethiopia, 2021(N = 404)

Variables	Characteristics	Frequencies	Percentages (%)
Do you think that keeping your oral hygiene is important for your health	Yes	330	81.7%
	No	74	18.3%
Is cleaning teeth prevents tooth decay	Yes	273	67.6%
	No	131	32.4%
Is cleaning teeth prevents bleeding of gums	Yes	214	53.0%
	No	190	47.0%
Is brushing helps to remove germs from teeth	Yes	245	60.6%
	No	159	39.4%
Do you think that cleansing tooth prevents bad breath	Yes	284	70.3%
	No	120	29.7%
Have you heard about dental plague	Yes	168	41.6%
	No	236	58.4%
Do you think that cleansing teeth prevents dental plaque	Yes	203	50.2%
	No	201	49.8%
Do you think that eating sweet foods like candy, biscuit and others causes dental caries	Yes	300	74.3%
	No	104	25.7%

Do you think that failure to clean teeth regularly worsen diabetes	Yes	172	42.6%
	No	232	57.4%
Do you think that diabetes worsen oral diseases, like gum disease	Yes	266	65.8%
	No	138	34.2%
Respondents knowledge to ward oral hygiene Hygiene	Good knowledge	229	56.7%
	Poor knowledge	175	43.3%

Footnote: N= numbers

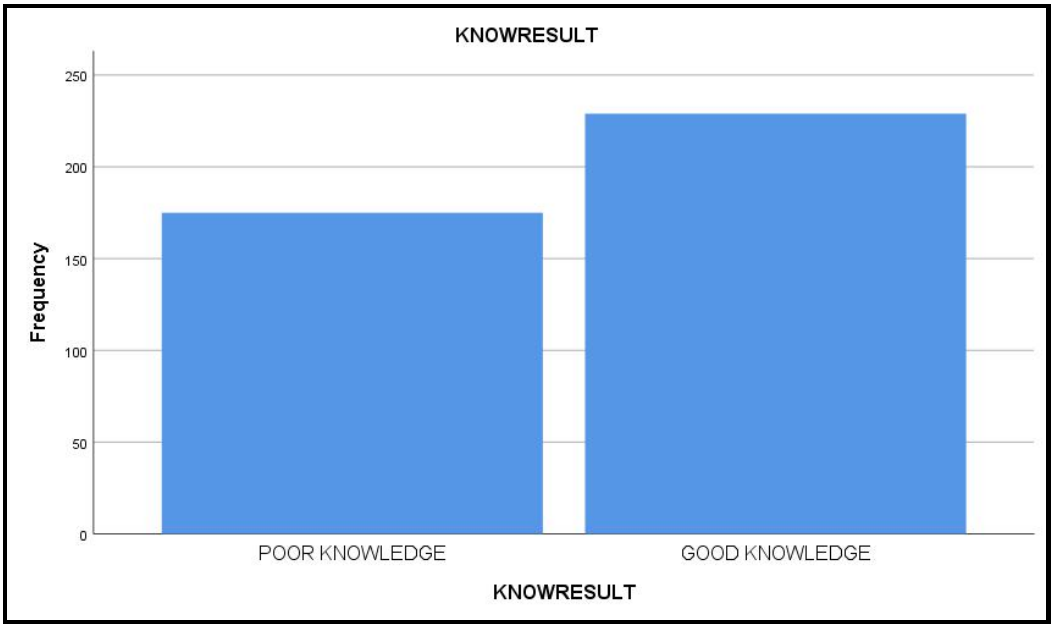

Figure 2: Knowledge status of responde

5.4. Oral hygiene practice related factors

Most of the respondents 296(73.3) clean their teeth, once a day 115(28.5%) using tooth brush 176(43.6%), 10(2.5%) never rinse their mouth after eating meal,183 (45.5%) visit a dental clinic with a different dental reason. The detail of oral hygiene practice of the study participant is described in the table 4 below.

Table 4: Oral hygiene practice related factors of diabetic patients in selected government hospital, Gurage Zone, Southern Ethiopia, 2021(N = 404)

Variables	Category	Frequency	Percent
Do you ever clean your teeth	Yes	296	73.3
	No	108	26.7
If yes how often do you clean your teeth	once a day	115	28.5
	twice a day	67	16.6
	three times a day	5	1.2
	once a week	69	17.1
	once a month and above	40	9.9
which material do you used to clean your teeth	tooth brush	176	43.6
	wooden stick	120	29.7
If you use tooth brush to clean your teeth, how often you changed it	once a month	31	7.7
	after 3-4 months	87	21.5
	after one year	3	.7
	when the bristles begin to bend	39	9.7
	when the bristles get discolored	16	4.0
Do you use toothpaste when cleansing your teeth	Yes	174	43.1
	No	122	30.2
If you did not ever clean your teeth, what is your reason	lack of tooth brush, lack of tooth pest I don't know how to clean teeth	19	4.7
	no reason	89	22.0
Do you rinse your mouth with water after eating your meal	Always	86	21.3
	Sometimes	140	34.7
	Rarely	168	41.6
	Never	10	2.5
DO you ever visit a dental clinic	Yes	183	45.3
	No	221	54.7
If yes, how long is it since your last visit to the dentist	<6 month	25	6.2
	6-12 month	63	15.6
	>year but <2 year	72	17.8
	>2 years, but <5 years	23	5.7
If yes what was the reason for your	Consultation	18	4.5

last visit to the dentist	For filling	16	4.0
	For tooth extraction	25	6.2
	For cleaning of teeth	11	2.7
	pain or trouble with teeth or gums	105	26.0
	For follow-up treatment	4	1.0
	Don't remember	4	1.0
Respondents knowledge to ward oral hygiene practice Practice	Good practice	217	53.3
	Poor practice	187	46.7

Footnote: N=404

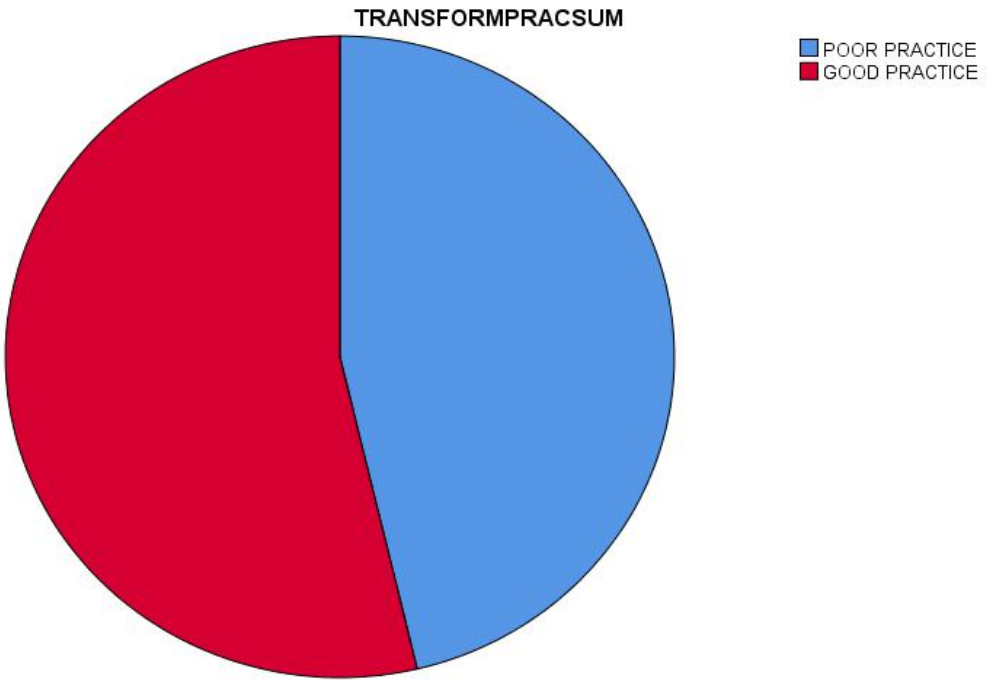

Figure 3: Oral hygiene practice of respondents