HARAMAYA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

SCHOOL OF ENVIRONMENTAL HEALTH

Assessment of Oral Hygiene Practice and its Associated Factors among Primary School Children in Jigjiga Town, Somali Region, Ethiopia

A proposal submitted to the School of Environmental Health, School of Graduate Studies, College of Health & Medical Sciences, Haramaya University in Partial Fulfilment of the Requirement for the Degree of Masters in Water Supply and Sanitation Management

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LIST OF ACRONYMS/ ABBREVIATIONS

CSA	Centeral Statistical Agency
ETB	Ethiopian Birr
ECC	Early Childhood Caries
OHB	Oral Health Behavior
OHBI	Oral Health Behavior Intension
SSA	Sub Saharan Africa
WHO	World Health Organization

SUMMARY

Background:-Oral health is essential to general health, is a fundamental human right, and is one of the contemporary issues globally. However, poor oral hygiene among primary students is the major causes of public health problems in Africa including Ethiopia, contributed to dental caries and other periodontal diseases. Good practice of oral hygiene adopted as a preventive strategy against oral diseases to improve the well-being of children and families. In Somali region, there is limited awareness, poor access to quality water, sanitation, and health infrastructures which may lead to poor practice of oral hygiene. However, oral hygiene practice was low among students and little is known about the practice as well as factors contributing to it in Jigjiga.

Objective:-To assess the prevalence of oral hygiene practice and its associated factors among primary school children in Jigjiga town, Somali region, Ethiopia, from October 15 to 25, 2025.

Methodology:-A school based cross sectional study will be conducted in Jigjiga town among primary school children students. A total of 383children will be selected by systematic random sampling technique from randomly selected primary schools. Structured and pretested questionnaire will be used to collect information through face to face interview. Descriptive statistics such as frequency, percentage and cross tabulation will be displayed. Binary logistic regression will be used to measure the association between dependent and independent variables and significant variables at p-value <0.2 will be further tested using multivariate analysis to identify independent factors associated with the practice of oral hygiene. P-value <0.05 will be considered to show the level of significance. Odds ratio with 95% CI will be reported for each predictors.

Expected Outcome: The finding is expected to improve the practice of oral hygiene among primary school children in Jigjiga town by creating awareness to children, families and building the schools capacity to introduce oral health education program

Proposed budget: The study needs a total budget of 60,658.00 Ethiopian Birr and will be covered by self.

Key words: oral hygiene, Jigjiga, Somali region

1. INTRODUCTION

1.1. Background

Oral health is increasingly recognized as a significant global public health issue, with good oral health now considered a fundamental human right (Duguma & Jeylan, 2019; Wong et al., 2019; Glick et al., 2020). Effective oral health practices include regular use of dental health services, maintaining oral hygiene, limiting sugar intake, and using fluoride-based products (Foote et al., 2023). Oral health is not only essential for physical well-being, but it also plays a crucial role in emotional, psychological, and socioeconomic health at both individual and family levels (Tadin et al., 2022; Pakkhesal et al., 2021).

Globally, poor oral hygiene continues to be a major public health challenge, particularly among children (Salah, 2018; Kassebaum et al., 2017). Tooth decay (dental caries) is among the most prevalent chronic childhood diseases, leading to complications such as oral pain, infections, difficulty in eating and sleeping, speech issues, abscesses, malocclusion, tooth loss, gastrointestinal disorders, and malnutrition (Percival et al., 2019; Azañedo et al., 2017; Anil & Anand, 2017). Approximately 486 million children worldwide suffer from dental caries in their primary teeth (Nepaul & Mahomed, 2020), with prevalence rates ranging from 50% to 90% globally (Tsang et al., 2019).

While dental caries affect children in all regions, the burden is significantly higher in low- and middle-income countries. In these regions, prevalence rates can exceed 70%, compared to 1–12% in more developed countries (Anil & Anand, 2017; Elamin et al., 2021). The situation is particularly concerning in Africa, where studies have reported increasing trends of oral health issues among children. For example, the pooled prevalence of early childhood caries in Ethiopia was reported at 40.9% (Zewdu et al., 2021; Shitu et al., 2021). This high burden is primarily attributed to risky oral health behaviors and poor hygiene practices.

Beyond dental caries, other oral conditions such as periodontitis, HIV/AIDS-related oral lesions, and oro-dental trauma are also recognized by the World Health Organization (WHO) as significant public health concerns (Baiju et al., 2017). Among children, these oral diseases are

known to negatively impact academic performance and complicate treatments for other serious conditions, such as cancer (Kowlessar et al., 2019; Salah, 2018; Ribeiro et al., 2018).

Poor oral hygiene is one of the most modifiable risk factors is directly linked to a range of oral and systemic health conditions, including heart disease, diabetes, and certain cancers, significantly affecting quality of life (Tadin et al., 2022; Wong et al., 2019; Omara et al., 2021). Key oral hygiene behaviors (OHBs), such as brushing teeth with fluoride toothpaste and daily flossing, have been shown to be effective in preventing these conditions (Tadin et al., 2022; Baiju et al., 2017).

However, in Ethiopia, oral hygiene practices remain inadequate, especially among school-aged children. According to Shitu et al. (2021), less than 10% of school children in Ethiopia demonstrate good oral hygiene behavior. This poor practice contributes substantially to the high prevalence of oral health problems in the country, highlighting the urgent need for improved oral health promotion and preventive strategies at the community level.

1.2. Statement of the Problem

Dental caries in primary school children is a major problem worldwide and remained untreated mainly in lower-income counties due to unavailable, unaffordable and inappropriate dental health services (Andegiorgish et al., 2017). Prevalence of caries varied widely with several factors like race, culture, and ethnicity; socioeconomic status, life style, dietary pattern, and oral hygiene practices (Anil and Anand, 2017). Age is also one of the contributing factors identified by various studies with certain discrepancies in distribution as well as severity of the oral disease between countries but also between populations in the same county (Salah, 2018, Arora et al., 2017). In disadvantaged populations and underserved communities, oral disease risk is elevated throughout the life course owing to, e.g., socioeconomic status, discrimination, and lack of access to quality oral health care (Arora et al., 2017, Sudi et al., 2022).

The good news is that the major oral diseases are preventable (Foote et al., 2023). Public health intervention against oral diseases of all age groups has gained much concern over the past decades. WHO has given particular emphasis to incorporation of oral health into general health, called upon countries to ensure that systematic policies for oral health and effective population-

directed oral health programs are organized and established a resolution (WHA60.17) on Oral Health to take appropriate actions against oral disease (Petersen et al., 2020). Since the 1980s or so, countries have demonstrated the effect of oral disease prevention through fluoridation programs, school programs, tobacco and alcohol interventions, and healthy dietary intake (Northridge et al., 2020, Foote et al., 2023). School health program mainly health education had shown to improve the oral health knowledge and oral health related practices such as the frequency and duration of brushing; contributing to the overall reductions in the score of plaque and gingival bleeding (Priya et al., 2019, Swe et al., 2021).

High quality and timely preventive dental interventions can reduce the occurrence of caries and avoid complications in later life. Despite this, many children in this region are not covered by school oral health programs because the school dental services are absent and oral health care coverage is inadequate giving less emphasis for preventive care (Baiju et al., 2017, Glick et al., 2020, Northridge et al., 2020). Moreover, adequate fluoridation of water and use of fluoridated toothpaste were 0% and 30.8% in low-income countries, extremely low compared to high-income countries (Petersen et al., 2020).

Worldwide, there is inequalities in oral health care between countries considering the allocation of resources including the human resources, the quality, utilization, and financing of oral health care, which is unnecessary and avoidable (Arora et al., 2017). Many countries in Africa have a shortage of oral health personnel, with the dentist to population ratio of 1:150,000 compared with 1:2,000 in most developed countries (Northridge et al., 2020). It should be acknowledged that like many of developing countries, Ethiopia have also challenged with large socioeconomic gaps, fragmented healthcare systems, limited provision of dental services, and few professional odontologists. Moreover, cultural factors can affect children's access to dental services, including their parents' education and/or knowledge (Northridge et al., 2020).

In Ethiopia, the awareness and the practice towards oral hygiene behavior found to be low among primary school students, contributing for a high prevalence of dental carries ranged from 20% to 75% (Abate et al., 2020). In Debre tabor, Ethiopia, the prevalence of dental caries was reported to be 78.2% and found to be higher among those with poor oral hygiene status

(Tafere et al., 2018). Further, 66% of the students in Ethiopia do not have intention to improve their oral hygiene behavior (OHBI) (Shitu et al., 2021).

To enhance the children's oral hygiene, authorities need to know the factors affecting it. Previous studies showed the relationship between children's oral hygiene and some of their demographic factors such as parents' educational and occupational status, number of sibling in family, and family structure (one or two parent's family). However, to the best of our knowledge, no study has assessed the practice of oral hygiene in Jigjiga town, Somali region and most of the studies in Ethiopia focused on the oral diseases mainly dental caries and the targets were also secondary school children. Therefore, this study aimed to assess the oral hygiene practice among primary school children and its associated factors in Jigjiga town, Somali region.

1.3. Significance of the Study

This study on the practice of oral health hygiene and its associated factors in Jigjiga town, holds significant implications for various stakeholders, including school children and their families, primary schools, health care providers, Jigjiga city health counsel, Jiggiga city education bureau, and researchers. Understanding the factors surrounding oral hygiene practice among primary school children fosters their knowledge, builds their capacity, and improves their practice of oral health care to reduce the risk of dental diseases as well as related complications. In turn, this can help parents and caregivers gain knowledge about the importance of oral health and enable them to guide their child effectively. Even the families and society at large can be benefited economically from reduced health care costs associated with treatment as well as increased productivity.

By identifying the factors influencing their practice of good oral hygiene, this study may also help schools introduce or enhance oral health education program, teaching children about proper hygiene techniques, which can improve their school attendance and performance. The study may also provide valuable insights, enabling Jigjiga city health counsel and health care providers to design targeted intervention community education aimed at improving the practice of good oral hygiene, dietary habits and regular dental check-ups. Further, this research adds to the collective knowledge base and can be an input for further researches needed to tackle oral health problems at regional level.

1.4. Objectives

1.4.1. General Objective

- To assess oral hygiene practice among primary school children and its associated factors in Jigjiga town, Somali region, Ethiopia, from October 15 to 25, 2025.

1.4.2. Specific Objectives

- To determine the prevalence of oral hygiene practice among primary school children in Jigjiga town, Somali region, Ethiopia.
- To identify factors associated with the practice of oral hygiene among primary school children in Jigjiga town, Somali region, Ethiopia.

2. LITERATURE REVIEW

2.1 Prevalence of oral hygiene practice among primary school children

A school based cross-sectional study conducted among 540 intermediate male Saudi students in 2019 showed 66.9% of children did not brush their teeth daily, 78% didn't use dental floss, 62.7% rinse with water after each meal and 69.6% visited a dentist due to pain (Al-Qahtani et al., 2020). Another cross-sectional study in 2013 among 453 pre-school children in Iran indicated 71.2% had started tooth brushing after the age of 2 years and 24.2% brushed their teeth lower than once daily (Shaghaghian and Zeraatkar, 2017). In Nigeria, the score for the practice of good oral hygiene ranged from 0% to 88.9% with a mean score of 42.5% among 2087 secondary school students aged 12-18 years in 2018(Lawal and Oke, 2020).

An institution-based cross-sectional study conducted in Debre Tabor among 422 students in 2018 revealed 61.6% of the students had poor oral hygiene practice (Tafere et al., 2018). In 2019, another study among 320 Medhanealem high school students in Addis Ababa demonstrated an inadequate practice of oral hygiene where 60.4% of the students had poor oral hygiene practice (Abate et al., 2020). Additionally, one study in Amhara region among 443 special need school children by the year 2020 indicated 46.6% of the participants had poor oral hygiene (Tefera et al., 2023).

2.2 Factors associated with the practice of oral hygiene

2.2.1 Socio-demographic and socio-economic factors.

Study from Iranin 2013 showed mother's employment status was significantly associated with children tooth brushing frequency where children from employed mothers were at higher odds of frequent tooth brushing practice (AOR=2.24; 95CI: 1.05-4.77, p-value=0.037)(Shaghaghian and Zeraatkar, 2017). In Ethiopia, one study from Amhara region in 2020 showed children's from mothers with a higher educational status were at higher odds of having good oral hygiene status (AOR=3.85; 95CI: 1.55-9.59)(Tefera et al., 2023). A cross-sectional study conducted among Nigerian adolescents in 2018 indicated a significant association of good oral hygiene practice with child aged 12-15 years(AOR=1.7; 95CI: 1.4-2.0, p-value<0.001) and being female child (AOR=1.2; 95CI: 1.0-1.5, p-value=0.024)(Lawal and Oke, 2020). Number of children in the

family was also associated with children frequency of tooth brushing and in Iran a higher tooth brushing frequency was observed among the households with more number of children (Shaghaghian and Zeraatkar, 2017).

2.2.2. Dietary factors and consultations

A study conducted in Nigeriaby the year 2018 revealed children who received education about oral health and those who consulted the dentist were 1.3 (AOR=1.3; 95CI: 1.0-1.7, p-value=0.023)and 1.9 times (AOR=1.9; 95CI: 1.2-3.1, p-value=0.009)more likely to have a good oral hygiene practice respectively(Lawal and Oke, 2020). In 2019, meal types was also found to be a factor for oral hygiene practice with 58.8% Saudi children's took sweets between meals (p value < 0.001)(Al-Qahtani et al., 2020) and frequency of taking sugared foods were also identified as a significant factor for good practice of oral care in Ethiopian study conducted in 2020(AOR=6.63; 95CI: 1.10-39.79)(Tefera et al., 2023).

2.2.3. Periodontal condition

A study conducted in Nigeria in 2018 indicated that 73.3% of adolescents student had unhealthy periodontium, 4.7% had dental caries and this factors were a significant predictors of higher oral health practice score (AOR=1.2; 95CI: 1.0-1.5)(Lawal and Oke, 2020).

2.3. Conceptual framework

Poor practice of oral hygiene is a critical global issue influenced by a range of socio-economic, information, dietary, and service related factors. This conceptual framework identifies and categorizes the key factors contributing to poor oral hygiene practice among children at primary school. Understanding these factors is essential for developing effective mitigation strategies and ensuring good oral health condition.

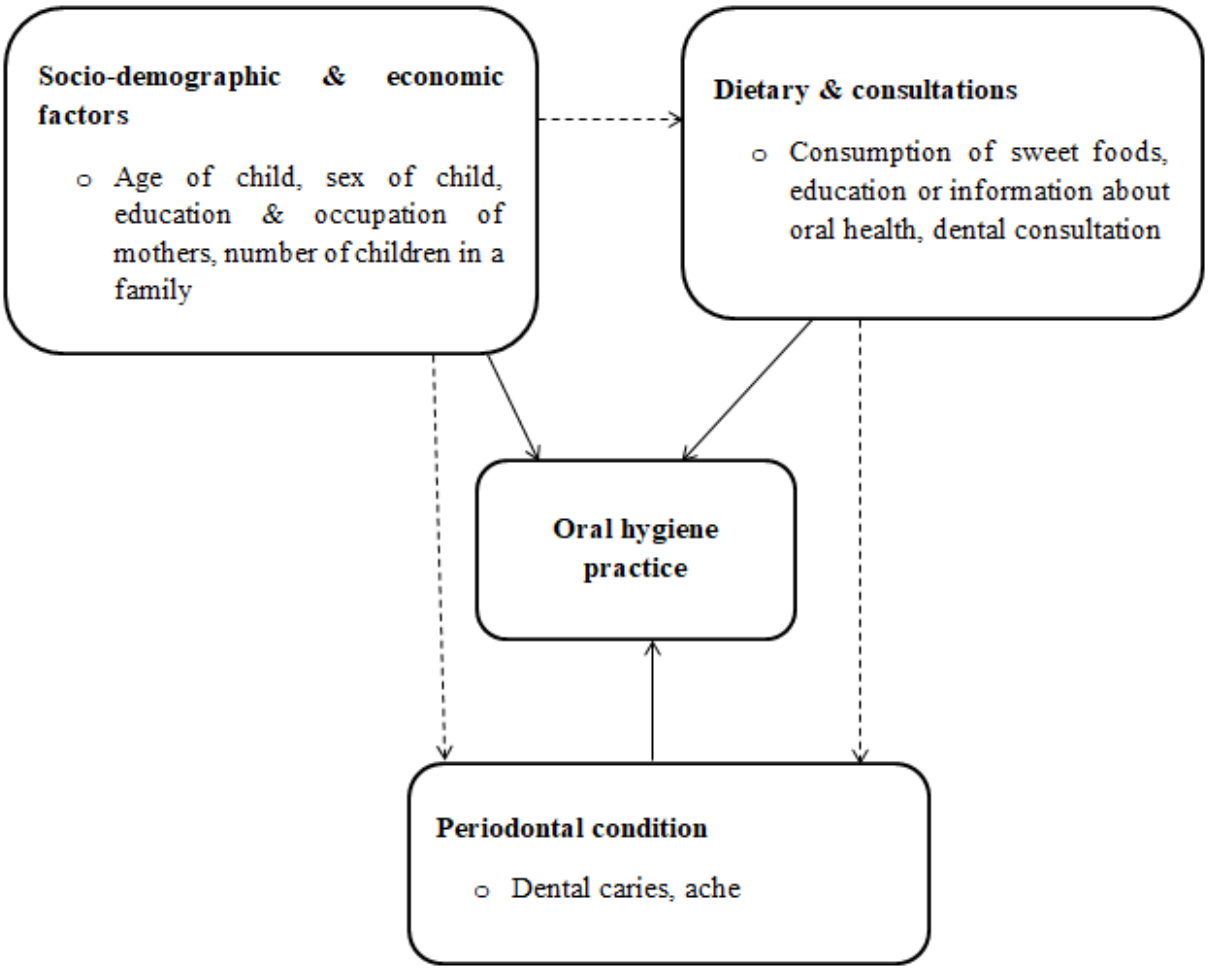

Figure 1.Conceptual framework for factors associated with the oral hygiene practice among primary school children constructed from different literatures by the investigator**.**

3. METHODOLOGY

3.1. Study Area and Study Period

The study will be conducted among primary school children who were attending their education at the selected public and private primary schools in Jigjiga town from October 15 to 25, 2025. Jigjiga town is under Jigjiga city administration and according to the latest Census (2007), the population of the town is estimated to be 450,671. There are a total of 106 primary schools in Jigjiga town of which 95 of them are private schools. There were a total of 57,068 students in all primary schools in Jigjiga consisting 30,599 male and 26,469 female students.

3.2. Study Design

A school based quantitative cross-sectional study will be used.

3.3. Population

3.3.1 Source Population

All primary school children attending grade 1 – 8of the 2024/25academic year in Jigjiga town will be the source population.

3.3.2. Study Population

The study population will be children attending grade 1-8of the 2024/25academic year among selected primary schoolsin Jigjiga town.

3.4. Inclusion and Exclusion Criteria

3.4.1. Inclusion Criteria

All primary school children attending their education in selected primary schools of Jigjiga town under regular program will be included.

3.4.2. Exclusion Criteria

Those who were absent during data collection, critically ill, unable to communicate and those whose parents were not available to give consent will be excluded.

3.5. Sample Size Determination

The sample size for the first objective was determined based on single population proportion formula, assuming that the proportion of 61.6% of the students in Debre Tabor town, Amhara region had good oral hygiene practice(Tafere et al., 2018).

$$\mathbf{n} = \frac{(Z^{2)}\, p \times (1-P)}{d^2} = \frac{(1.96)^2 \times 0.616(1-0.616)}{(5\%)^2} = \frac{3.8416 \times 0.2365}{0.0025} = 364$$

Where Z^2= standard normal deviation = 1.96 = 95% C.I

P = prevalence for previous study

d = margin of error = 5%

After considering 5% for non-response rate, the sample size for this become**383**

For the second objective

The sample size for the second objective will be calculated taking different risk factors associated with good oral hygiene practice among children into consideration. The sample for the second objective was calculated by OpenEpi sample size calculator using the following assumptions: a power of 80%, 95% confidence interval, magnitude of good oral hygiene practice among exposed and non-exposed, a given adjusted odds ratio, and a one to one ratio between exposed and unexposed.

Table 1: Sample size calculation for the second objective to identify factors associated with oral hygiene practice among primary school children in Jigjiga city, Somali region.

Factors	Prevalence among exposed	Prevalence among unexposed	AOR	Final sample size including 5% for non-response	Ref
Mothers able to read & write	23	15.6	3.85	108	(Tefera et al., 2023)
Taking carbohydrates	14.7	21.9	6.64	48	(Tefera et al., 2023)

Finally, comparing the sample sizes obtained for the objective one and two, we took the one that gives large sample size. Therefore, the final sample size for this study will be 383 which is calculated for the first objective.

3.6. Sampling Techniques &Procedures

First, all primary schools in Jigjiga town were stratified as public and private. There were 11 and 95 public and private primary schools in Jigjiga town of which 2 from public schools and 3 from private schools were selected by simple random sampling technique using lottery method. Then, the required sample size will be allocated proportionally to each selected primary school according to their number of students from grade 1 to 8. Finally, systematic random sampling method will be used to select children from each primary school with certain interval value (every 16^{th}).

After proportional allocation of the sample to each primary school, the first student will be selected from 1 to 16 by using lottery method and the rest students will be selected every interval of 16 from the student list. If the selected student was not available during the data collection, repeated attempt will be done till the end of data collection period before taking the next student.

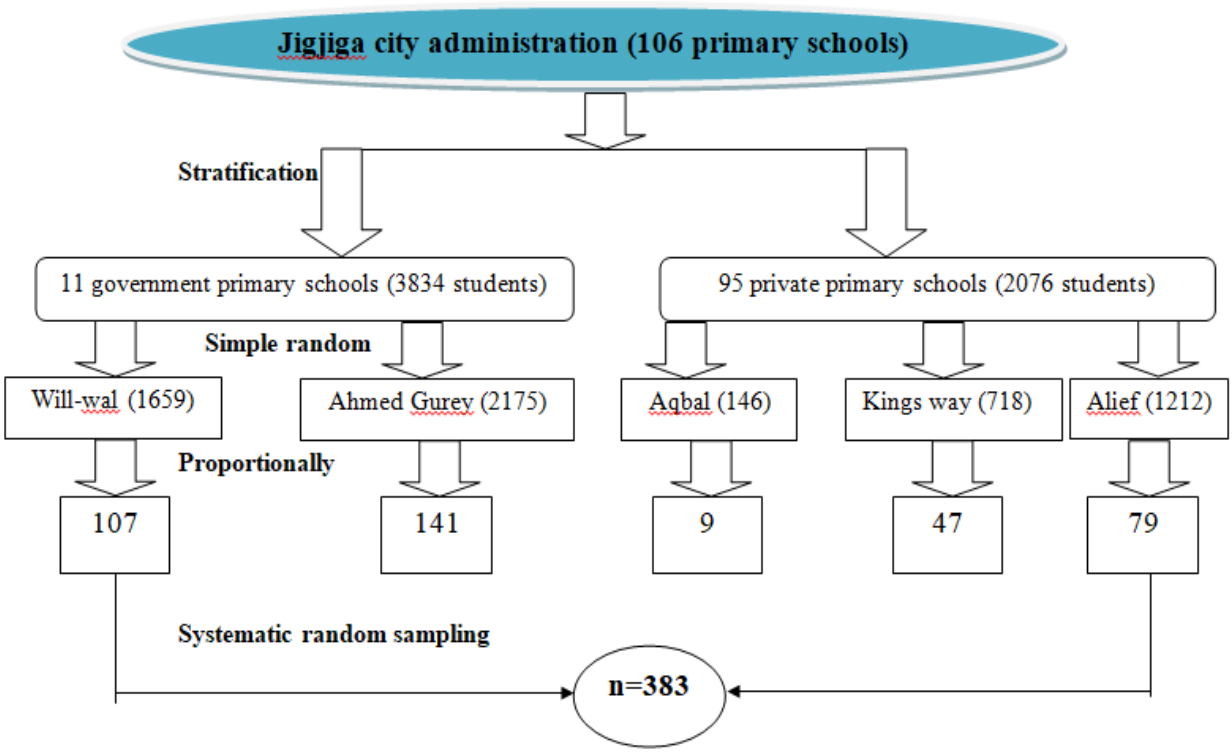

Figure 2: Schematic presentation of sampling procedure

3.7. Data Collection Methods

3.7.1 Data Collection Instruments

The data will be collected using structured and pre-tested questionnaire adopted and modified from different literatures (Various studies, 2017-2023) The data collection tool will be prepared in English then it will be translated into local languages (Somali and Amharic) and then back to English language.

3.7.2 Data Collectors and Supervisors

The data will be collected by five data collectors who are degree holders and trained on the study objectives, procedures, and ethical related issues. Two supervisors with a master's degree in public health will be assigned to follow the data collection process.

3.7.3 Procedure of Data Collection

Face-to-face interview will be conducted to collect the data.

3.8. Variables

3.8.1. Dependent variable

Oral hygiene practice (poor/good)

3.8.2. Independent variables

- **Socio-demographic and economic factors**
  - Age of the child
  - Sex of the child
  - Number of children
  - Educational level of the mother
  - Occupation of the mother
- **Dietary factors and consultation**
  - Consumption of sweet foods
  - Frequency of consumption
  - Education or information about oral health
  - Dental consultation
- **Periodontal conditions**
  - Self-reported periodontal problems like dental caries, ache

3.9. Operational Definitions

Good practice respondents will be considered to have good practice of oral hygiene if he/(s) correctly answered/practice greater than or equal to the mean of the total practice assessing questions.

Poor practice respondents will be considered to have poor practice of oral hygiene if he/(s) correctly answered/practice less than to the mean of total practice assessing questions.

3.10. Data Quality Control

Data collectors and supervisors will be trained for one day on the purpose of the study, content of questionnaire, sampling procedure, interviewing technique, and ethical issues. The tool will be translated to Somali as well as Amharic version and back translation will be done by another person to ensure consistency and accuracy. Before actual data collection, the questionnaires will be pretested on 5 % of the calculated sample size in Jigjiga boarding school, one of the non-selected primary school in the town. Additionally, regular guidance and supervision will be done the immediate supervisors and principal investigator.

3.11. Method of Data Analysis

The collected data will be checked for completeness, coded, entered and cleansed using Epi-Data Version 3.1.0. Then, it will be exported to SPSS version 25 for analysis. Descriptive statistics will be used such as, frequency, tables, graphs and percentages. Also, bivariate analysis will be done to test the association between the independent variables with the outcome variable.

All explanatory variables that have association with the outcome variable in bivariate analyses will be included into multivariate logistic regression, to assess factors that are significantly associated with the good practice of oral hygiene among primary school children's. A variable with p values below 0.2 in the bivariate analysis will be considered for multivariate logistic regression. P-values, 95% confidence interval and odds ratio will be reported for each predictor. A p-value of less than 0.05 will be considered to determine the level of significance. Further, the model will be tested for its fitness and multicollinearity among explanatory variables will also be checked.

3.12. Ethical Considerations

Prior to data collection, the study proposal will be reviewed and approved by Institutional Health Research Ethics Review Committee (IHRERC) of College of Health and Medical Science, Haramaya University. Also, support letter will be written to the city administration health counsel and permission will be secured from each selected primary schools, where the study will

be conducted. During data collection, all the parents/care takers of the selected child will be clearly informed about the objective and significance of the study. The parents or caregivers will be informed that participation in the study is entirely voluntary, and they may withdraw their child at any time without any consequences. Privacy and confidentiality will be strictly maintained at all stages of the study, including data collection, analysis, and reporting.

3.13 Expected Outcome

This study will deliver evidence that helps to improve the practice of oral hygiene among primary school children in Jigjiga town, Somali regional state, Ethiopia

3.14. Information Dissemination

The final report will be presented and submitted as partial fulfillment of the degree of master of public health in Environmental health science, Haramaya University. Copies of the final report will be provided to Somali regional health bureau, water bureau, each selected primary schools and non-governmental organizations. Further, publication will also be considered.

4. WORK PLAN

Table 2: Proposed work/activity plan to conduct a study on Assessment of oral hygiene practice among primary school children and its associated factors in Jigjiga town, Somali Region, Ethiopia July –November 2025.

Nº	**Activities**	**Responsible**	**Months of accomplishment 2024/2025**				
			July	**Aug.**	**Sep.**	**Oct.**	**Nov.**
1	Accomplishing the project proposal	Investigator					
2	Proposal submission	Investigator					
3	Approval of Ethical clearance	HUHRERC					
4	Recruitment and training of data collectors and supervisors	Investigator					
5	Pre-testing and data collection	Investigator & supervisors					
6	Data entry, cleaning& analysis	Investigator					
7	Writing up	Investigator					
8	Submission of first draft	Investigator					
9	Second draft submission	Investigator					
10	Final report submission	Investigator					
11	Thesis final Defense	Investigator					
12	Monitoring and evaluation	Investigator Supervisors					

5. BUDGET BREAKDOWN

Table 3: Personal cost requiredto conduct a study on assessment of oral hygiene practice among primary school children and its associated factors in Jigjiga town, Somali region, Ethiopia.

A. Personal costs

Activities	**Number of participants**	**Cost per day**	**No of days**	**Total**
Per diem				
Data collectors	5	250.00	20	25,000.00
Supervisors	2	250.00	20	10,000.00
Training and pre-test	7	250.00	2	3500
Total				**38,500.00**

B. Transport and communication cost

Item	**Quantity**	**Unit price/day**	**No of trips**	**No of days per trip**	**Total**
Transport cost for data collectors	5	100.00	10	-	5,000.00
Transport for supervisors	2	100.00	6	5	6000
Telephone (Card)	7	100.00	-	-	700.00
Total					**11,700.00**

C. Stationary cost

Item	Quantity	Unit price	Total
Questionnaire (duplication)	536 (06 pages)	3.00	9108
Paper	1 ream	750.00	750.00
Pencil	5	10.00	50.00
Eraser	5	5.00	25.00
Note pad	5	45.00	225.00
Flip chart	1	300.00	300.00
Total			**10,458.00**

D. Total budget summary

Item	Total
Personal cost	38,500.00
Transport & communication cost	11,700.00
Stationery	10,458.00
Total cost	**60,658.00**

Budget source: the source of budget will be self for now but, will look forward for other source from WASH program at RHB.

6. LIST OF REFERANCES

ABATE, B., EPHREM, M., GEBREMARIAM, M., AYALEW, Y. & SHIMELS, T. 2020. Knowledge, attitude, and practices toward oral hygiene among students of medhanealem high school, Addis Ababa, Ethiopia. *Journal of Dental Research and Review,* 7**,** 42-49.

AL-QAHTANI, S. M., RAZAK, P. A. & KHAN, S. D. 2020. Knowledge and practice of preventive measures for oral health care among male intermediate schoolchildren in Abha, Saudi Arabia. *International journal of environmental research and public health,* 17**,** 703.

ANDEGIORGISH, A. K., WELDEMARIAM, B. W., KIFLE, M. M., MEBRAHTU, F. G., ZEWDE, H. K., TEWELDE,et al. 2017. Prevalence of dental caries and associated factors among 12 years old students in Eritrea. *BMC oral health,* 17**,** 1-6.

ANIL, S. & ANAND, P. S. 2017. Early childhood caries: prevalence, risk factors, and prevention. *Frontiers in pediatrics,* 5**,** 157.

ARORA, G., MACKAY, D. F., CONWAY, D. I. & PELL, J. P. 2017. Ethnic differences in oral health and use of dental services: cross-sectional study using the 2009 Adult Dental Health Survey. *BMC Oral Health,* 17**,** 1-12.

AZAÑEDO, D., HERNÁNDEZ-VÁSQUEZ, A., CASAS-BENDEZÚ, M., GUTIÉRREZ, C., AGUDELO-SUÁREZ, A. A. & CORTÉS, S. 2017. Factors determining access to oral health services among children aged less than 12 years in Peru. *F1000Research,* 6.

BAIJU, R., PETER, E., VARGHESE, N. & SIVARAM, R. 2017. Oral health and quality of life: current concepts. *Journal of clinical and diagnostic research: JCDR,* 11**,** ZE21.

DUGUMA, F. K. & JEYLAN, M. 2019. Assessment on knowledge, attitude and practice towards dental fluorosis and its impact among goro secondary school students in Adama Town, Ethiopia, June 2016. *Advances in Dentistry & Oral Health,* 11**,** 66-79.

ELAMIN, A., GAREMO, M. & MULDER, A. 2021. Determinants of dental caries in children in the Middle East and North Africa region: a systematic review based on literature published from 2000 to 2019. *BMC Oral Health,* 21**,** 1-30.

FOOTE, T., WILLIS, L. & LIN, T. K. 2023. National oral health policy and financing and dental health status in 19 countries. *international dental journal,* 73**,** 449-455.

GLICK, M., DA SILVA, O. M., SEEBERGER, G. K., XU, T., PUCCA, G., WILLIAMS, D. M., KESS, S., EISELÉ, J.-L. & SÉVERIN, T. 2020. FDI Vision 2020: shaping the future of oral health. *International dental journal,* 62**,** 278.

KASSEBAUM, N. J., SMITH, A. G., BERNABÉ, E., FLEMING, T. D., REYNOLDS, A. E., VOS, T., MURRAY, C., MARCENES, W. & COLLABORATORS, G. O. H. 2017. Global, regional, and national prevalence, incidence, and disability-adjusted life years for oral conditions for 195 countries, 1990–2015: a systematic analysis for the global burden of diseases, injuries, and risk factors. *Journal of dental research,* 96**,** 380-387.

KOWLESSAR, A., NAIDU, R., RAMROOP, V., NURSE, J., DOOKIE, K., BODKYN, C. & LALCHANDANI, S. 2019. Oral health among children attending an oncology clinic in Trinidad. *Clinical and Experimental Dental Research,* 5**,** 665-669.

LAWAL, F. B. & OKE, G. A. 2020. Clinical and sociodemographic factors associated with oral health knowledge, attitude, and practices of adolescents in Nigeria. *SAGE open medicine,* 8**,** 2050312120951066.

NEPAUL, P. & MAHOMED, O. 2020. Influence of parents' oral health knowledge and attitudes on oral health practices of children (5–12 years) in a rural school in KwaZulu-Natal, South Africa. *Journal of International Society of Preventive and Community Dentistry,* 10**,** 605-612.

NORTHRIDGE, M. E., KUMAR, A. & KAUR, R. 2020. Disparities in access to oral health care. *Annual review of public health,* 41**,** 513-535.

OMARA, M., STAMM, T. & BEKES, K. 2021. Four-dimensional oral health-related quality of life impact in children: A systematic review. *Journal of oral rehabilitation,* 48**,** 293-304.

PAKKHESAL, M., RIYAHI, E., NAGHAVI ALHOSSEINI, A., AMDJADI, P. & BEHNAMPOUR, N. 2021. Impact of dental caries on oral health related quality of life among preschool children: perceptions of parents. *BMC Oral Health,* 21**,** 1-8.

PERCIVAL, T., EDWARDS, J., BARCLAY, S., SA, B. & MAJUMDER, M. A. A. 2019. Early childhood caries in 3 to 5 year old children in Trinidad and Tobago. *Dentistry journal,* 7**,** 16.

PETERSEN, P. E., BAEZ, R. J. & OGAWA, H. 2020. Global application of oral disease prevention and health promotion as measured 10 years after the 2007 World Health Assembly statement on oral health. *Community dentistry and oral epidemiology,* 48**,** 338-348.

PRIYA, P. G., ASOKAN, S., JANANI, R. & KANDASWAMY, D. 2019. Effectiveness of school dental health education on the oral health status and knowledge of children: A systematic review. *Indian Journal of Dental Research,* 30**,** 437-449.

RIBEIRO, A. P. D., ALMEIDA, R. F., MEDONCA, J. G. A. & LEAL, S. C. 2018. Oral health and its effect on the academic performance of children and adolescents. *Pediatric Dentistry,* 40**,** 12-17.

SALAH, N. 2018. Comparison of oral health in children aged 5-6 years in the Czech Republic and Yemen. *Central European journal of public health,* 26**,** 305-309.

SHAGHAGHIAN, S. & ZERAATKAR, M. 2017. Factors affecting oral hygiene and tooth brushing in preschool children, Shiraz/Iran. *Journal of dental biomaterials,* 4**,** 394.

SHITU, K., ALEMAYEHU, M., BUUNK-WERKHOVEN, Y. A. & HANDEBO, S. 2021. Determinants of intention to improve oral hygiene behavior among students based on the theory of planned behavior: A structural equation modelling analysis. *PloS one,* 16**,** e0247069.

SUDI, S. M., KABBASHI, S., ROOMANEY, I. A., ABORASS, M. & CHETTY, M. 2022. The genetic determinants of oral diseases in Africa: The gaps should be filled. *Frontiers in Oral Health,* 3**,** 1017276.

SWE, K. K., SOE, A. K., AUNG, S. H. & SOE, H. Z. 2021. Effectiveness of oral health education on 8-to 10-year-old school children in rural areas of the Magway Region, Myanmar. *BMC Oral Health,* 21**,** 1-8.

TADIN, A., POLJAK GUBERINA, R., DOMAZET, J. & GAVIC, L. Oral hygiene practices and oral health knowledge among students in Split, Croatia. Healthcare, 2022. MDPI, 406.

TAFERE, Y., CHANIE, S., DESSIE, T. & GEDAMU, H. 2018. Assessment of prevalence of dental caries and the associated factors among patients attending dental clinic in Debre Tabor general hospital: a hospital-based cross-sectional study. *BMC oral health,* 18**,** 1-7.

TEFERA, A. T., GIRMA, B., ADANE, A., MUCHE, A., AYELE, T. A., GETAHUN, K. A., ANILEY, Z., ALI, S. & HANDEBO, S. 2023. Oral health-related quality of life and oral hygiene status among special need school students in amhara region, Ethiopia. *Health and Quality of Life Outcomes,* 21**,** 26.

TSANG, C., SOKAL-GUTIERREZ, K., PATEL, P., LEWIS, B., HUANG, D., RONSIN, K., BARAL, A., BHATTA, A., KHADKA, N. & BARKAN, H. 2019. Early childhood oral health and nutrition in urban and rural Nepal. *International journal of environmental research and public health,* 16**,** 2456.

WONG, F. M., NG, Y. T. & LEUNG, W. K. 2019. Oral health and its associated factors among older institutionalized residents—a systematic review. *International journal of environmental research and public health,* 16**,** 4132.

ZEWDU, T., ABU, D., AGAJIE, M. & SAHILU, T. 2021. Dental caries and associated factors in Ethiopia: systematic review and meta-analysis. *Environmental Health and Preventive Medicine,* 26**,** 1-11.

7. ANNEXES

7.1. Information sheet and informed voluntary consent for head of the schools

1. Introduction:

My name is Mr. Ziyad Shieknur Abdi. I am the Principal Investigator of the study to be conducted in this primary school. I am studying for my Master's degree at Haramaya University, the College of Health and Medical Sciences. I kindly request you to lend me your attention to explain you about the study and your institution being selected as the study setting.

2. The study/project title:

Assessment of Oral Hygiene Practice among Primary School Students and its Associated Factors in Jigjiga Town, Faffan Zone, Somali Regional State, Ethiopia.

3. Purpose/aim of the study:

The findings of this study can be of a paramount importance for the school and health sector to plan intervention programs to prevent periodontal diseases among school children, thereby improving their oral hygiene practice. Moreover, the aim of this study is to write a thesis as a partial requirement for the fulfillment of a Master's degree Program in in water supply sanitation and hygiene management for the principal investigator.

4. Procedure and duration:

I will be interviewing the students using a questionnaire to provide me with pertinent data that is helpful for the study. There are 20 questions to answer where I will fill the questionnaire by interviewing the students. The interview on each student will take about 20 minutes.

5. Risks and benefits:

The risk of participating in this study is very minimal, but only taking few minutes from students time. There would not be any direct payment for participating in this study. But the findings from this research may reveal important information for the local health planners.

6. Confidentiality:

The information that we will be provided will be kept confidential. There will be no information that will identify the participants in particular. The findings of the study will be general for the study community and will not reflect anything particular of individual persons. The questionnaire will be coded to exclude showing names. No reference will be made in oral or written reports that could link participants to the research.

7. Rights:

Participation for this study is fully voluntary. The participants have the right to declare to participate or not in this study. If they decide to participate, they have the right to withdraw from the study at any time and this will not label them for any loss of benefits which they otherwise are entitled. They do not have to answer any question that they do not want to answer. The school has also the right to stop this study from being conducted if any misdeeds and unethical procedures are observed during the data collection process in the school's premises.

8. Contact address:

If there are any questions or enquires any time about the study or the procedures, please contact: Mr. Ziyad Shieckabdi Hassan at mobile number as well as contact address of the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone 0254662011 or P.O.Box 235, Harar, Ethiopia.

9. Declaration of informed voluntary consent:

I have read the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that participants have the right to withdraw from the study at any time or not to answer any question that they do not want. I am also informed that the school has the right to stop this study from being conducted if any misdeeds and unethical procedures are observed during the data collection process in the school's premises. Therefore, I declare my voluntary consent on behalf of _____ school management to allow this study to be conducted in the school with my initials (signature).

Name and Signature of Head of the school:_____ _____ Date _____

Name and Signature of the PI:_____ _____ Date _____

N.B

This is signed face to face in the presence of the PI.

Please provide a copy of this signed consent to the responsible head.

7.2. Information sheet and informed voluntary consent for minors (age <18 yr)(English version)

1. Introduction:

My name is _____. I am working as a data collector for the study being conducted in this school by Mr. Ziyad Shieknur Abdi who is studying for his/her Master's degree at Haramaya University, the College of Health and Medical Sciences. Your child is randomly selected to be participant in this study. I kindly request you to lend me your attention to explain you about the study and the child's participation.

2. The study/project title:

Assessment of Oral Hygiene Practice among Primary School Students and its Associated Factors in Jigjiga Town, Faffan Zone, Somali Regional State, Ethiopia.

3. Purpose/aim of the study:

The findings of this study can be of a paramount importance for the school and health sectors to plan intervention programs to prevent periodontal diseases among school children, thereby improving their oral hygiene practice. Moreover, the aim of this study is to write a thesis as a partial requirement for the fulfillment of a Master's Program in water supply sanitation and hygiene management for the principal investigator.

4. Procedure and duration:

I will be interviewing to ask your child 20 questions that will help us to know the practice of oral hygiene by the student. This procedure will take your child about 20 minutes. Therefore, I kindly request you to allow the child spare me this time.

5. Risks and benefits:

The risk of being participating for your child in this study is very minimal; but only taking few minutes from his/her time. There would not be any direct payment for participating in this study. But the findings from this research may reveal important information for the local health planners.

6. Confidentiality:

The information that we will collect from this study will be confidential. There will be no information that will identify your child or yourself in particular. The findings of the study will be general for the study community and will not reflect anything particular of individual persons or housing. The data that we gather from the measurements will exclude showing names. No reference will be made in oral or written reports that could link participants to the research.

7. Rights:

Participation for this study is fully voluntary. You have the right to declare to allow your child to be involved in this study or not. If you would allow your child for this study, you have the right to withdraw him/her from the study at any time and this will not label you/your child for any loss of benefits which you/your child otherwise are entitled. You do not have to answer any question that you do not as well.

8. Contact address:

If there are any questions or enquires any time about the study or the procedures, please contact: Mr. Ziyad Shieckabdi Hassan at mobile number as well as contact address of the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone 0254662011 or P.O.Box 235, Harar, Ethiopia.

9. Declaration of informed voluntary consent:

I have read/ was read to me the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that the child have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declare my voluntary consent to allow my child to participate (be involved) in this study with my initials (signature).

Name of the participant: _____ (Assent affirmed if a minor age of 8-18 years

Name and signature of parent/legal guardian: _____ _____ Date: _____

Name and signature of Data Collector: _____ _____ Date: _____

N.B

- This is signed face to face in the presence of the data collector.
- Please provide a copy of this signed consent to the participant's legal representative.
- If the participant (parent/guardian) is lay person and cannot sign initials, can put his/her thumb print in front of a competent witness; and the witness has to sign alongside (with his/her name and ress).
- If the participant is in the age range of 8-18 years, an assent (oral or written) may also be required from the minor on top of the parental/guardian consent.

7.3. Information sheet and informed voluntary consent for minors (age <18 yr)(Somali version)

Xaashida Macluumaadka iyo Ogolaanshaha Ikhtiyaariga ah ee Madaxa Dugsiga

1. Hordhac:

Magacaygu waa **Mr. Zyiad Shieknur Abdi**. Anigu waxaan ahay cilmi Baadhaha daraasaddan lagu samaynayo dugsigan hoose. Waxaan wax ka baadhayaa Jaamacadda Haramaya, Kulliyadda Caafimaadka iyo Sayniska. Waxaan si xushmad leh kaaga codsanayaa inaad ii ogolaato inaan sharaxo daraasaddan iyo sababta dugsigaagu loo doortay inuu noqdo goobta daraasadda.

2. Cinwaanka Mashruuca/Daraasadda:

Qiimaynta Habdhaqanka Nadaafadda Afka ee Ardayda Dugsiyada Hoose iyo Waxyaabaha La Xiriira ee Magaalada Jigjiga, Gobolka Fafan, Dawlad Deegaanka Soomaalida, Itoobiya.

3. Ujeedada Daraasadda:

Natiijooyinka daraasaddan waxay muhiim u noqon karaan dugsiga iyo waaxda caafimaadka si loo qorsheeyo barnaamijyo wax ka qabta cudurrada cirridka ee ardayda, loogana shaqeeyo kor u qaadidda nadaafadda afka. Sidoo kale, daraasaddan waxay qayb ka tahay buuxinta shuruudaha Master-ka ee Maareynta Biyaha, Nadaafadda iyo Fayadhowrka.

4. Habraaca iyo Mudada:

Waxaan wareysan doonaa ardayda anigoo adeegsanaya su'aalo qoraal ah si aan u helo xog muhiim u ah daraasadda.Wareysigu wuxuu qaadan doonaa qiyaastii 20 daqiiqo arday kasta.

5. Khatarta iyo Faa'iidooyinka:

Khatarta ka dhalan karta ka qaybgalka daraasaddan waa mid aad u yar, oo kaliya wakhti yar oo ardayda laga qaato.Ma jirto lacag toos ah oo la siinayo ka qaybgalayaasha.Si kastaba ha ahaatee, natiijooyinka daraasaddan waxay noqon karaan kuwo faa'iido u leh qorsheyaasha caafimaadka deegaanka.

6. Qarsoodiga:

Xogta la bixiyo si qarsoodi ah ayaa loo ilaalin doonaa. Ma jiri doonto wax aqoonsi ah oo lagu garan karo ka qaybgalayaasha. Su'aalaha waxaa lagu calaamadin doonaa lambar si aan magacyo loo muujin. Warbixinnada afka ama qoraalka ah laguma xusi doono wax xiriir ah oo ka qaybgalayaasha la leh daraasadda.

7. Xuquuqda:

Ka qaybgalka daraasaddan waa ikhtiyaari.Ka qaybgalayaashu waxay xaq u leeyihiin inay go'aansadaan inay ka qaybqaataan ama ka baxaan daraasadda wakhti kasta. Waxay sidoo kale xaq u leeyihiin inaysan ka jawaabin su'aal kasta oo aysan rabin. Dugsigu wuxuu xaq u leeyahay inuu joojiyo daraasaddan haddii wax khaldan ama anshax xumo laga arko habka xog ururinta.

8. Cinwaanka Xiriirka:

Haddii ay jiraan su'aalo ama wax faahfaahin ah oo ku saabsan daraasadda, fadlan la xiriir: Mr. Ziyad Shieckabdi Hassan (Mobile) Guddiga Anshaxa Cilmi-baarista Caafimaadka ee Jaamacadda Haramaya (IHRERC) Tel: 0254662011 P.O.Box: 235, Harar, Itoobiya

9. Qirashada Ogolaanshaha Ikhtiyaariga ah:

Waxaan akhriyay xaashida macluumaadka ka qaybgalaha.Waxaan si cad u fahmay ujeedada daraasadda, habraacyada, khataraha iyo faa'iidooyinka, arrimaha qarsoodiga, xuquuqda ka qaybgalka iyo cinwaanka xiriirka.Waxaan fursad u helay inaan weydiiyo su'aalo.Sidaas darteed, waxaan ku caddeynayaa ogolaanshahayga ikhtiyaariga ah anigoo matalaya maamulka dugsiga _____ si daraasaddan loogu sameeyo dugsiga.

Magaca iyo Saxeexa Madaxa Dugsiga: _____ **Taariikh**: _____
Magaca iyo Saxeexa Baaraha: _____ **Taariikh**: _____

Ogeysiis: Ogolaanshahan waxaa lagu saxeexayaa si toos ah iyadoo Baaruhu joogo. Fadlan nuqul ka mid ah ogolaanshahan la siiyo maamulka dugsiga.

7.4. Information sheet and informed voluntary consent for minors (age <18 yr)(Amharic version)

Xaashida Macluumaadka iyo Ogolaanshaha Ikhtiyaariga ah ee Carruurta (Da'da ka yar 18 sano)

1. Hordhac:

Magacaygu waa _____. Waxaan ka shaqeynayaa sidii uruuriyaha xogta ee daraasaddan lagu sameynayo dugsigan, taasoo uu wado Mr. Zyiad Shieknur Abdi oo wax ka baranaya Jaamacadda Haramaya, Kulliyadda Caafimaadka iyo Sayniska. Ilmahaaga si aan kala sooc lahayn ayaa loo doortay inuu ka qaybqaato daraasaddan.Waxaan si xushmad leh kaaga codsanayaa inaad ii ogolaato inaan sharaxo daraasadda iyo ka qaybgalka ilmahaaga.

2. Cinwaanka Daraasadda:

Qiimaynta Habdhaqanka Nadaafadda Afka ee Ardayda Dugsiyada Hoose iyo Waxyaabaha La Xiriira ee Magaalada Jigjiga, Gobolka Fafan, Dawlad Deegaanka Soomaalida, Itoobiya.

3. Ujeedada Daraasadda:

Natiijooyinka daraasaddan waxay muhiim u noqon karaan dugsiga iyo waaxda caafimaadka si loo qorsheeyo barnaamijyo wax ka qabta cudurrada cirridka ee ardayda, loogana shaqeeyo kor u qaadidda nadaafadda afka. Sidoo kale, daraasaddan waxay qayb ka tahay buuxinta shuruudaha Master-ka ee Maareynta Biyaha, Nadaafadda iyo Fayadhowrka.

4. Habraaca iyo Mudada:

Waxaan wareysan doonaa ilmahaaga anigoo weydiinaya su’aalo kooban oo naga caawinaya fahamka habdhaqanka nadaafadda afka.Wareysigu wuxuu qaadan doonaa qiyaastii 20 daqiiqo.Sidaas darteed, waxaan si xushmad leh kaaga codsanayaa inaad ogolaato in ilmahaagu waqtigan i siiyo.

5. Khatarta iyo Faa’iidooyinka:

Khatarta ka dhalan karta ka qaybgalka ilmahaaga waa mid aad u yar, oo kaliya wakhti yar oo laga qaato.Ma jirto lacag toos ah oo la siinayo ka qaybgalayaasha.Si kastaba ha ahaatee, natiijooyinka daraasaddan waxay noqon karaan kuwo faa’iido u leh qorsheyaasha caafimaadka deegaanka.

6. Qarsoodiga:

Xogta la ururiyo si qarsoodi ah ayaa loo ilaalin doonaa. Ma jiri doonto wax aqoonsi ah oo lagu garan karo ilmahaaga ama adiga. Natiijooyinka daraasaddan waxay noqon doonaan kuwo guud oo aan muujin wax gaar ah oo qof ama qoys ku saabsan. Su'aalaha waxaa lagu calaamadin doonaa lambar si aan magacyo loo muujin.

7. Xuquuqda:

Ka qaybgalka daraasaddan waa ikhtiyaari.Waxaad xaq u leedahay inaad go'aansato in ilmahaagu ka qaybqaato ama aan ka qaybqaadan.Haddii aad ogolaato, waxaad xaq u leedahay inaad ka saarto ilmahaaga daraasadda wakhti kasta, iyada oo aan wax dhibaato ah ka imaanayn. Adigu sidoo kale ma aha inaad ka jawaabto su'aal kasta oo aadan rabin.

8. Cinwaanka Xiriirka:

Haddii ay jiraan su'aalo ama wax faahfaahin ah oo ku saabsan daraasadda, fadlan la xiriir: Mr. Ziyad Shieckabdi Hassan (Mobile) Guddiga Anshaxa Cilmi-baarista Caafimaadka ee Jaamacadda Haramaya (IHRERC) Tel: 0254662011 P.O.Box: 235, Harar, Itoobiya

9. Qirashada Ogolaanshaha Ikhtiyaariga ah:

Waxaan akhriyay/ama la i akhriyay xaashida macluumaadka.Waxaan si cad u fahmay ujeedada daraasadda, habraacyada, khataraha iyo faa'iidooyinka, arrimaha qarsoodiga, xuquuqda ka qaybgalka iyo cinwaanka xiriirka.Waxaan fursad u helay inaan weydiiyo su'aalo.Sidaas darteed, waxaan ku caddeynayaa ogolaanshahayga ikhtiyaariga ah si ilmahaygu uga qaybqaato daraasaddan.

Magaca ka qaybgalaha (ilmaha): _____ (Ogolaansho la xaqiijiyay haddii da'du tahay 8–18 sano) **Magaca iyo saxeexa waalidka/mas'uulka sharciga ah**: _____ **Taariikh**: _____ **Magaca iyo saxeexa uruuriyaha xogta**: _____ **Taariikh**: _____

Ogeysiis: • Ogolaanshahan waxaa lagu saxeexayaa si toos ah iyadoo uruuriyaha xogta joogo. • Nuqul ka mid ah ogolaanshahan la siiyo wakiilka sharciga ah ee ka qaybgalaha. • Haddii waalidka/mas'uulka uusan saxiixi karin, far ama suulka ayaa la dhigi karaa iyadoo markhaati aqoon leh joogo. • Haddii ka qaybgalaha uu da'diisu tahay 12–17 sano, ogolaansho (af ama qoraal) ayaa sidoo kale laga doonayaa ilmaha.

7.4. Information sheet and informed voluntary consent for minors (age <18 yr)(Amarc version)

1. መግቢያ:

ስሜ_____ነው።በዚህ ትምህርት ቤት ውስጥ ከሚካሄደው ጥናት ጋር በተያያዘ እንደ የመረጃ ሰብሳቢ እሰራለሁ ። ይህንን ጥናት የሚያስከናውነው አቶ ዚያድ ሺክኑር አብዲ ነው፣ እሱም በሐረማያዩ ኒቨርሲቲ የጤና እና የሕክምና ሳይንስ ኮሌጅ ውስጥ የማስተር ስዲግሪ እየሰሩ ነው። ልጅዎ በድምር ምርጫ የተመረጠ ተሳታፊ ነው። ስለሚካሄደው ጥናት እና ልጅዎ በሚሳተፈው ዘዴ ለማብራራት ትኩረትዎን በትህትና እጠይቃለሁ።

2. የጥናቱ አርእስት:

በጅጅጋ ከተማ፣ ፋፋን ዞን፣ ሶማሌ ክልል ውስጥ በተማሪዎች መካከል የጥርስ ንፅህና ልምድ እና ጋር የተያያዙ ሁኔታዎች ጥናት።

3. ዓላማ እና ግብ:

የዚህ ጥናት ውጤቶች በትምህርት ቤትና በጤና ክፍል ላይ የሚጠቅሙ ናቸው። በተማሪዎች መካከል የጥርስ በሽታዎችን ለመከላከል የእርምጃ እቅዶችን ማዘጋጀት ይቻላል፣ ይህም የጥርስን ንፅህና ልምድን ማሻሻል ይረዳል። በተጨማሪም ዋናው እስተባባሪ ይህንን ጥናት እንደ የማስተርስ ዲግሪ ፕሮግራሙ አካል ለመስጠት ይጠቀማል።

4. ሂደት እና ቆይታ:

ልጅዎን አንዳንድ ጥያቄዎች በመጠየቅ የጥርስ ንፅህና ልምድ ለመረዳት እንጠይቃለን። ይህ ሂደት ከ20ደቂቃ አይበልጥም። ስለዚህ ልጅዎ ይህንን ጊዜ እንዲያወጣልኝ እባኮትን ፍቀዱልኝ።

5. አደጋ እና ጥቅሞች:

በጥናቱ ላይ ለልጅዎ የሚኖረው አደጋ በጣም ዝቅተኛ ነው፣ ጊዜ ብቻ ይወስዳል። ለመሳተፍ በቀጥታ የገንዘብ ክፍያ አይኖርም። ግን ከጥናቱ የሚመጡ ውጤቶች ለአካባቢው የጤና እቅዶች አስፈላጊ ይሆናሉ።

6. ሚስጥራዊነት:

ከዚህ ጥናት የምንሰበስበው መረጃ በሙሉ በሚስጥር ይጠበቃል። ልጅዎን ወይም እርስዎን የሚያሳይ ማንነት መረጃ አይጠቀምም። ውጤቶች በአጠቃላይ የማህበረሰቡን ሁኔታ ይወክላሉ እንጂ በግል ሰው ላይ አይተገኙም። ስሞች በውሂብላይ አይገልጹም። በየተለያዩ ዘገባዎችም ተሳታፊዎች ከጥናቱ ጋር አይያያዙም።

7. መብቶች:

በጥናቱ ላይ በ ልጅዎ መሳተፍ ፈቃደኝነት ብቻ ነው። እርስዎ ልጅዎን እንዲሳተፍ ወይም እንዳይሳተፍ ለመወሰን መብት አለዎት። ከፈቀዱ እንኳን በማንኛውም ጊዜ ልጅዎን ከጥናቱ ማውጣት ይችላሉ፣ ይህም ምንም ጥቅሞችን አያጉድም። እርስዎ ያልፈለጉትን ጥያቄ መልስ ማድረግ አይጠበቅብዎትም።

8. የእውቂያ አድራሻ:

ስለ ጥናቱ ወይም ሂደቱ በማንኛውም ጊዜ ጥያቄ ካለ፣ እባክዎት አቶ ዚያድ ሺክ አብዲ ሀሰንን በስልክ ያነጋግሩ። እንዲሁም ከኢንስቲትዩችናል የጤና ጥናት ሥነ-ምግባር አርቲት ኮሚቴ (IHRERC) ጋር በመስመር ላይ 0254662011 ወይም በፖ.ሳ.ቁ.235 ሐረር፣ኢትዮጵያ ያነጋግሩ።

9. የተገኘ በፈቃደኝነት የማብቂያ ፈቃድ መግለጫ:

የተሳታፊውን መረጃ መስመር አንብቤአለሁ/ተነብቦልኝ ነው። የጥናቱን አላማ፣ሂደት፣ አደጋ እና ጥቅሞች፣የሚስጥርነት ጉዳዮች፣የመብቶችን እና የእውቂያ አድራሻን በግልጽ ተረድቻለሁ። ያልተገለጸልኝን ነገር ስለመጠየቅ እድል ተሰጠኝ። ልጅዬ በማንኛውም ጊዜ ከጥናቱ ሊወጣ እንደሚችል እና የማይፈልገውን ጥያቄ እንዳይመልስ ተነግሮኛል። ስለዚህ፣ልጅዬ በዚህ ጥናት እንዲሳተፍ በፈቃደኝነት እፈቅዳለሁ።

የተሳታፊ ስም:_____

(ከ8-18 ዓመት ህፃናት ከሆኑ የልጁ ፈቃድ (assent) እንዲሰጥ ይጠየቃል)

የወላጅ/ህጋዊ እንክብካቤ ስም እና ፊርማ:_____ቀን:_____

የመረጃ ሰብሳቢ ስም እና ፊርማ:_____ቀን:_____

ማስታወሻ(N.B):

- ይህ ፈቃድ በመረጃ ሰብሳቢው ፊት ለፊት ሲደረግ ይፈረመዋል።
- የተፈረመው ቅጂ ለልጁ የህጋዊ እንክብካ ቤተ ወካይ ይሰጣል።
- ተሳታፊው (ወላጅ/እንክብካቤ) የተማረ ሰው ካልሆነ ፊርማ በመዋል አይችልም፣ የአንገትጣት አስቀምጦ በተመራማሪ ምስክር ፊት ሊፈርም ይችላል፣ምስክሩም ስምና ፊርማ አብሮ ይፈርም።
- ተሳታፊው ከ12-17 ዓመት እድሜ መካከል ከሆነ ☐ በወላጅ/እንክብካቤ ፈቃድ ተጨማሪ የልጁ ፈቃድ (assent) በአፍ ወይም በጽሑፍ ሊያስፈልግ ይችላል።

7.5.Questionnaire (Englishversion)

Part-IQuestionnaireon Socio-Demographic Characteristics

No	Questions	Responses	Skipto
101	Age	_____	
102	Sex	1.Male 2.Female	
103	Grade level		
104	*What is the highest education level the mother achieved?*	1.Cannotreadandwrite 2.Elementaryschool(1-8) 3.Secondaryschool(9-12) 4.Abovegrade12 5.Others,specify----------	
105	*What is the occupation of the mother?*	1.Housewife 2.Farmer 3.Governmentemployee 4.Merchant 5.Dailylabourer 6.Otherspecify_____	
106	*The number of children in the family(innumber)?*	----------	

Part-IIQuestionnaireondietaryfactorsandconsultation

No	Questions	Responses	Skipto
201	Consumption of sweet food	1.Yes 2.No	
202	Frequency of consumption	Daily 2-3 days Onceaweek	

203	Did you received any information about oral health and hygiene	1.Yes 2.No	
204	School health education	1.Yes 2.No	
205	Did you have any previous consultation for dental health	1.Yes 2.No	

Part-IIIQuestionnaireonperiodontalcondition

No	**Questions**	**Responses**	**Skipto**
301	Dentalaches	1.Yes 2.No	
302	Self-reporteddentalproblem	1.Yes 2.No	

Part-IVQuestionnaireonPractice

No	**Questions**	**Responses**	**Skipto**
401	Doyoucleanyourteeth	1.Yes 2.No	
402	Whichofthefollowingtoolsdoyouusetocleanyourteeth	Chewingstick Toothbrush Bothchewingstickandtoothbrush Differenttools	
403	Whichothersubstancesdoyouusewhencleaningyourteeth	Toothpaste Salt Charcoal	

		Others None	
404	Howoftendoyoucleanyourteeth?	Oncedaily Twotimeaday Threetimesaday Others(occasionally)	
405	Inrelationtomeals,whendoyoubrushyourteeth	1Beforemeal Aftermeal Bothbeforeandafter	
	Doyoucleanyourtongue		
406	Howoftendoyouvisitthedentist	Everyyear WhenIhaveatoothache Nevervisitedadentist	
407	Whatwasthereasonforyourvisittothedentist	Atoothextraction Foradentalcheckup Tohavetoothcleaned Totoothache	

7.6 Questionnaire(Somali version)

Qaybta I: Tirada Bulshada iyo dabeecadaDhaqaalaha

No	Questions	Responses	Skipto
101	Da'da	_____	
102	Jinsiga	1.Lab 2.Dhedeig	
103	Fasalka		
104	Heerka waxbarasho ee Hooyada	1.Ma akhrin karo mana qoro 2.Dugsi hoose (1-8) 3.Dugsi sare (9-12) 4.Kasareeye 12 5. Wax kale ----------	
105	Waamaxay shaqada Hooyada ?	1.Hooyo guri joog ah 2.Beeralay 3.Shaqale dawladeed 4.Ganacsade 5.Xoogsato 6. Mid kale hadayjirto_____	
106	Tiraa caruurta qoyska (Tiro ahaan)?	----------	

Qaybta II: Cuntooyinka iyo La-tashiga Caafimaadka

No	Questions	Responses	Skipto
201	Macuntaa Cunto mac macaan leh	1.Haa 2.Maya	
202	Inta goo reed wax cunto	Maalinle 2-3Maalin Hal jeer 7aadki	
203	Ma heshay xog ku saabsan nadaafadda afka?	1.Haa 2.Maya	
204	Waxbarashada caafimaadka ee dugsiga	1.Haa 2.Maya	
205	Ma leedahay la-talin hore oo ilkaha ah?	1.Haa 2 Maya	

Qaybta III: Su'aalaha Xaaladda Ilkaha

No	Su'aalaha	Jawaabaha	Skipto
301	Ilka Xanuun	1.Yes 2.No	
302	Wax dhib ah oo kale ood isku aragtay	1.Yes 2.No	

Qaybta -IV Su'aalaha hab dhaqanka nadaafada afka

No	Su'aalaha	Jawaabaha	Skipto
401	Ilkaha Ma cadayataa(Nadiifisaa)	1.Haa 2.Maya	
402	Habkeed isticmaashaa markaad cadayanayso	Cadayga Laruugo Cadayga Burushka ah Labadaba Cadayga Iyo Burushkaba Qaab kale	
403	Whichothersubstancesdoyouusewhencleaningyourteeth	Toothpaste Salt Charcoal Others None	
404	Imisa jeer baad cadayataa(Ilkahaaga Nadiifisaa)?	Hal jeer maalintii Laba jeer maalintii Sadex jeer maalintii Mid kale (Mar mar uun)	
405	Xiliga Cuntada goor maad Cadayataa	1. Cuntada kahor 2. Cuntada kadib 3. Kahor Iyo Kadib ba	
	Carabkaaga Manadiifisaa	Haa ------- May-------	
406	Intee goor jeer baad dhakhtarkaada ilkaha utagtaa	Sanadki hal mar Markay ilkaha ixanunaan Waligayba umatagin	
407	Waamaxay sababta aad dhakhtarka ilkaha ugu tagto	Ilka bixinta Isbaadhid uun Ilkaha soo nadifsanayo Ilkaha ixanuunaan	

7.7 Questionnaire(Amharic version)

□□□ **I**□□□□□□-□□□□□□□□□□□□□□

□□□	□□□	□□□	**Skipto**
101	□□□	_____	
102	□□	1.□□□ 2.□□	
103	□□□□□□□	_____	
104	□□□□□□□□□□□□□□□□□□	1.□□□□□□□□□□□□□□ 2.□□□□□□□□□□□□ (1-8) 3.□□□□□□□□ (9-12) 4.□12 □□□□□□ 5.□□□□□□□□□□□□□□ _____	
105	□□□□□□	1.□□□□□□□ 2.□□□□□□□ 3.□□□□□□□□□ 4.□□□□□□ 5.□□□□□□□□ 6.□□□□□□□□□□□□□□ _____	
106	□□□□□□□□□□□□□□□□□	_____	

□□□ **II**□□□□□□□□□□□□□□

□□□	□□□	□□□	**Skipto**
201	□□□ □□□ □□□□	1.□□□ 2.□□	
202	□□□□□ □□□	□□□□□ 2-3 □□□□□□□□□□□□□□□	
203	□□□□□□□□□□□□□□□□□□□□□□□□?	1.□□□ 2.□□	
204	□□□□□□□□□□□□□□□□□□	1.□□□ 2.□□	
205	□□□□□□□□□□□□□□□□□□□□□□□?	1.□□□ 2.□□	

□□□ **III**□□□□□□□□□□□□□□□□□□

□□□	□□□	□□□	**Skipto**
301	□□□□□□□□	1.□□□ 2.□□	
302	□□□□□□□□□□□□□□□□□□	1.□□□ 2.□	

□□□ **IV**□ □□ □□□□□ □□□ □□□ □□□□□

□□□	□□□	□□□	**S**
401	□□□□□□□□□□□?	1.□□□ 2.□□	
402	□□□□□□□□□□□□□□□□□□□□□□□?	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	
403	□□□□□□□□□□□□□□□□□□□?	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	
404	□□□□□□□□□□□□□□□□□□□□□?	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ (□□□□□□□□)	
405	□□□□□ □□ □□□□□□ □□ □□□□□□□?	□□□□□□□□□□□□□□□□□□□□□□□□	
—	□□□□□□□□□□□?	_____	
406	□□□□□□□□□□□□□□□?	□□□□□□□□□□□□□□□□□□□□□□□□□	
407	□□□□□□□□□□□□□□□□□□□□□□□□□□□?	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	

7.8 Curriculum Vitae

Personal Data

Name: Ziyad Sheikhnur Abdi

Phone: +251 911 818 762

Email: ziyaadnuur@gmail.com

Date of Birth: 1987

Place of Birth: Gode

Sex: Male

Marital Status: Married

Nationality: Ethiopian

Mother's Name: Ambiya Omer Hirsi

Career Objective

-

Ambitious health leader with extensive experience in hospital management and public health, dedicated toimproving healthcare services, strengthening blood bank systems, and driving organizational growth through strategic leadership.

Education

Master of Public Health (Hospital Administration) Jigjiga University, 2015

Bachelor of Science, Health Officer Jigjiga University, 2012

Diploma, Medical Laboratory Science Jigjiga Health Science College, 2008

Professional Experience

Director, Blood Bank Directorate – Somali Regional Health Bureau 2018 – Present

CEO, Degahbur Hospital 2015 – 2018

CEO, Haregelle Hospital 2013 – 2014

Zonal Health Focal Person, Shabelle Zone 2012 – 2013

Laboratory Technician, Adadle Woreda Health Center 2008 – 2009

Key Skills

Hospital & Public Health Administration

Strategic Planning & Leadership

Stakeholder & NGO Collaboration

Data Analysis & Decision-Making

Fluent in Somali, English, and Amharic

Proficient in Microsoft Office & IT skills

Hobbies

- Reading books on leadership and Global politics
- Playing sport specially Aerobic
- Traveling to explore different cultures and histories
- Discipline and Team work

References

Dr. Muse Ahmed – Head, Somali Regional Health Bureau | Tel: +251 913 460 645

Dr. Sharmarke Sharif Bule – Deputy Head, Ethiopian Food & Medicine Authority | Tel: +251 915 119 12

7.9 Approval Sheet

HARAMAYA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Title: Assessment of Oral Hygiene Practice and its Associated Factors among Primary School Children in Jigjiga Town, Somali Region, Ethiopia.

Submitted by: **Ziyad Shiekhnur Abdi**

_____ _____ _____

Name of Student Signature Date

Approved by

1. **Negga Baraki (MPH, Assistant Professor)**_____ _____

Major advisor Signature Date

2. **Co-Advisor: Dr. Roba Aragaw (PhD)**_ _____ _____

Co-Advisor Signature Date

1. _____ _____ _____

Name of Chairman, SGS Signature Date

2. _____ _____ _____

Chairman, SPGC/DGC Signature Date