Oral Health Status of Timor-Leste 2025

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Article Info	ABSTRACT
Keywords: Oral health, quality of life, dental caries.	Oral health is a vital component of overall health, directly impacting an individual's quality of life. Oral health is a fundamental human right and is closely linked to physical and psychological well-being. Maintaining good oral health, through optimal dental hygiene and proper care, can prevent various diseases such as dental caries and periodontal disease, and support basic functions such as speaking, eating, and smiling, which are essential for social interaction and self-esteem. Poor oral health can cause discomfort, functional limitations, and psychological distress that diminish quality of life. Oral diseases such as caries and periodontal disease have a high prevalence globally, exerting significant socioeconomic impacts. Therefore, adopting good oral care habits and appropriate treatment are crucial to prevent the development of oral diseases that can impair quality of life. This study underscores the importance of maintaining oral health to improve overall health and quality of life.
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INTRODUCTION

Oral health is a crucial component of good health, a fundamental human right (Kathryn, 2017). Oral health is a crucial component of overall well-being and can directly impact a person's quality of life. Oral health is linked to general health and quality of life, emphasizing the importance of maintaining healthy dental function (Bhatnagar, 2021).

Dental health status, or currently referred to as oral health status, is the condition of the oral cavity, including the teeth and their supporting structures and tissues, which are free from disease and pain and can function optimally. Oral health status is also an integral part of a person's body organs that can affect their quality of life. Existing dental and oral health will influence the concept of quality of life (Quality of Life), which has been developed from the WHO concept in everyday life, namely functional limitations, pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap (WHO, 2022).

Oral health affects people both physically and psychologically. A healthy mouth not only promotes physical health but also improves social interactions, self-esteem, and quality of life. Dental and oral health is often overlooked by some, even though the teeth and mouth are the entry points for bacteria, which can harm the health of other organs (Bhatnagar, 2021; Peres et al., 2019).

If left untreated, oral diseases can severely impact health and cause pain, functional impairment, and impact quality of life. The FDI World Dental Federation Annual Report

informs everyone that good oral health is about keeping the mouth functioning properly and helping maintain overall health and quality of life (Baiju et al., 2017).

The results of the 2018 Indonesian Basic Health Research (Riskesdas) showed a dental caries prevalence of 88.8% with a national DMF-T index of 7.1. In Indonesia, 62.4% of the population felt their work or school was disrupted for an average of 3.86 days per year due to toothache (Anggraini and Andriani, 2022). Untreated dental caries can harm children's quality of life, impacting certain daily activities, such as difficulty eating and sleeping, and psychological disorders (Souza et al., 2018). Several studies have shown that dental caries affects quality of life, functional discomfort, physical and emotional well-being (Chaffee et al., 2017; Masumo et al., 2020; Spanemberg et al., 2019). In groups of people suffering from dental caries with a DMF-T above 3, the risk of decreased quality of life is 5.29 times higher (Jain et al., 2018). Dental caries is the fourth most common disease worldwide, with expensive treatment and the sixth most common public complaint (Tilman, 2016). The main indicator for evaluating dental caries is the DMF-T index, which indicates the amount of tooth decay an individual has experienced due to cavities, tooth loss, or fillings (Ryzanur and Adhani, 2022).

The development of the Epidemiology of Dental Caries in the World from 190 countries with six WHO regions (AFRO, AMRO, EMRO, EURO, SEARO and WPRO) shows that the average DMF-T score worldwide is 2.11 (± 1.32). Some countries have 1.8 carious teeth, missing teeth and filled teeth with a DMF-T index ranging from 0.2 to 7.8. The Americas and the European Region depict a Relative Risk of 1.14 and 1.10 times higher than the world average, and also an average increase in Population Attributable Risk of 14% and 10%, the African Region Relative Risk of 0.81 and Population Attributable Risk -19% lower compared to the average of all countries surveyed (Da and Moreira, 2012).

The prevalence of dental caries in Timor-Leste based on WHO data in 2019 was 44.8% in deciduous teeth and 35.5% in permanent teeth (WHO, 2022b). The 2002 Timor-Leste national oral health survey showed that the prevalence of dental caries was 90.4% with an average DMF-T index of 5.29 in the high category (NOHS-TL, 2002). A study in the city of Dili, Timor-Leste in 2014 to see the development of permanent dental caries experience in children in one decade from 2002 vs. 2014 was the prevalence of dental caries 69.8%, an average DMF-T index of 2.26 vs. 53.4% an average DMF-T index of 1.73 (Babo Soares, 2016).

World Health Organization (WHO) Periodontal disease is listed among the top 20 diseases affecting humanity worldwide (Tonetti, et al., 2017). The 2018 FDI World Dental Federation Annual Report states that periodontal disease is the leading cause of tooth loss in adults, starting with gingivitis, which can be easily treated and managed early, but if left untreated, gingivitis can progress to more serious periodontitis. Trends in population growth, changing risk factors, tooth retention, and periodontitis can increase the socioeconomic burden, which can be responsible for 3.5 million years of life with disability, 54 billion USD per year in lost productivity, and a significant portion of the 442 billion USD per year for oral disease. Public knowledge about periodontal health remains low. All FDI members (95.6%) agreed to address the global burden of socioeconomic impacts of periodontal disease and identified key challenges in addressing it, as older adults are often at higher risk for tooth loss, periodontal disease, oral cancer, and other diseases (Adrin, 2023).

Periodontal disease is a common oral health problem in the elderly population. Its prevalence varies substantially because there are no universal diagnostic criteria. The epidemiological characteristics of periodontal disease with three indicators in the Hong Kong

Chinese population are bleeding on probing 53.9%, pocket depth 57.0%, and clinical attachment loss 70.1%. There is no significant difference in terms of periodontal disease indicators between urban and rural populations, but the detection rate of PD ≥ 4 mm and CAL ≥ 4 mm is higher in men than in women (Yang et al., 2017). Periodontal disease in the United States in 2009-2010, a public health problem affecting nearly half of adults 30 years and older (Thornton-Van, & Genco, 2012). Men show a higher prevalence of periodontal disease than women, 56.4% and 38.4%, respectively (Eke et al., 2012). Mexican Americans have the highest prevalence of periodontal disease at 66.7% compared to other races. Other groups with a high prevalence of periodontal disease include smokers (64.2%), adults living below the poverty level (65.4%), and adults with a high school education (66.9%) (Wendling, 2016).

An epidemiological study of urban and rural oral health services in India in 2015 showed that sociodemographic factors influenced periodontal disease status in urban populations better than in rural populations with a significance of p<0.05 (Nethravathi, et al., 2015; Bokhari, et al., 2018). Groups suffering from a high prevalence of periodontal disease included current smokers (64.2%), adults living below the poverty level (65.4%), and adults with less than a high school education (66.9%) (Wendling, 2016). The impact of periodontal disease on patients' quality of life was statistically significant in two domains: physical pain (p=0.004) and psychological disability (p=0.001), with the conclusion that using the Arabic version of the OHIP-14 index, periodontal disease negatively impacted quality of life (Kattan, et al., 2017). Four of seven studies reported that periodontal disease impairs HRQoL, and 1 study showed that periodontal disease is positively associated with HRQoL (Haag, et al., 2017; Soares, et al., 2018). Patients with chronic periodontitis reported significantly worse oral health-related OHRQoL than healthy patients and the possible impacts were age, gender, functional, social, psychological, halitosis, pain and aesthetics (Durham, et al., 2013).

The results of the 2002 national survey on oral health in Timor-Leste showed that the prevalence of periodontal disease was 80%, with most children having calculus (77.8%). The prevalence of bleeding from gingival tissue was 25.9%, and only one in ten adults had good gum and periodontal health. Most adults showed signs of gingival bleeding or calculus accumulation. A small proportion of adults showed more advanced periodontal disease, with periodontal pockets measuring 4-5 mm (18.7%) or 6+ mm (7.4%). The highest prevalence of periodontal disease was in the elderly, especially those aged 45 years and older.

METHOD

Types and Design of Research

This type of research is a mixed method research. It was conducted in several stages, namely:

The first stage is exploratory qualitative research. In this first stage, the authors elaborated and identified a quality-of-life index for the Timorese population related to caries, periodontal disease, and oral hygiene experiences.

1. Determining index dimensions

2. Find indicators for each dimension

3. Developing a draft of a quality of life index measurement instrument. The second stage is a confirmatory quantitative study with a cross-sectional design, namely:

1. Testing the level of validity and reliability of the quality of life index

2. Testing predictive factors of quality of life index

Location and Time of Research

This research is located in the Democratic Republic of Timor-Leste, in both urban and rural areas, with target indicators covering households, senior high schools (SLTA), universities, and health facilities at both the central and regional levels. The research will be conducted between March and April 2024.

Data analysis

Validity and Reliability Test

a. Validity Test

Validity testing is carried out to determine whether the questionnaire is able to measure what is intended to be measured, which needs to be tested with a correlation test between the scores (values) of each question item with the total questionnaire. If the questions have a calculated r correlation value > r table then it is stated to have good validity. All questions must meet a meaningful correlation (Construct Validity) Notoatmojo, 2010) If it is found that the new instrument that has been prepared is not valid in substance, then it is necessary to make improvements to the instrument and retest it. If the instrument is valid in structure, then only improvements need to be made without the need for retesting.

b. Reliability Test

Data Reliability Testing is an index that shows the extent to which a measuring instrument can demonstrate accuracy and can be trusted using the Cronbach's Alpha method, namely analyzing the reliability of the measuring instrument from one measurement, with the provision that if the r Alpha value is > 0.6, then it is declared reliable.

Research Sample

The population of this study was all people aged 15-19, 35-44, and 65-74 in Timor-Leste. The selection of this study population was based on the 2011-2030 Development Strategic Plan and the 2011-2030 Health Sector Strategic Plan of the Ministry of Health of Timor-Leste, which aims to improve dental and oral health services and efforts in promotive, preventive, curative, and rehabilitative service programs at both the central and regional service levels.

Data Processing Techniques

Data processing techniques are performed after data is collected from the field. The collected data must be truly usable for analysis as needed in the research, and errors must be minimized as much as possible. Therefore, the data processing stage involves the following steps:

1. Data checking (Editing)

Data checking is conducted to verify the accuracy and completeness of answers to questions. If there are any incomplete or incorrect answers, the data must be completed, followed by interviews and rechecking.

2. Coding

After checking all the data and correcting its accuracy and completeness, the researcher then codes it manually before processing it by computer using software.

3. Tabulation

The process of transferring data from the questionnaire into predetermined and prepared tables.

4. Data entry into a computer system (Data Entry)

Entering data results into a computer system to be processed using SPSS.

5. Crossing and checking

Checking and readjusting all data that has been entered into the computer program to avoid errors.

Data analysis

The collected and summarized data will be processed using a computer system with the Statistical Package for Social Science (SPSS version 21) software program to analyze the distribution of each variable. Data analysis can be tested in stages, namely univariate, bivariate, and multivariate analysis, either partially or simultaneously or simultaneously between the Comfounding variables, Independent variables, and Dependent variables.

1. Univariate Analysis

Univariate analysis is a technique for analyzing data on a single variable independently. Each variable is analyzed without any connection to other variables, often referred to as descriptive analysis, whether independent or dependent, or confounding. The variables in question are sociodemographic factors, predisposing factors, reinforcing factors, enabling factors, dental and oral health status scores, and quality of life. Univariate analysis uses frequency distributions by calculating prevalence values (proportions and mean values).

2. Bivariate Analysis

Bivariate analysis explains the differences or relationships between two variables. Using Chi-Square analysis with a significance level of P=0.05 or 95% (Agung, 1993). Therefore, in this study, we will look at the relationship between confounding variables and independent variables, independent variables and dependent variables, and look at the quality of life in relation to dental and oral health status (dental caries, periodontal disease, and oral hygiene) due to poor oral care.

3. Multivariate Analysis

Multivariate analysis is analyzing one or more relationships, together or simultaneously, to analyze a number of measurements on an individual or object (Santoso, 2018). Therefore, multivariable analysis here will explain the relationship between all confounding variables with the independent variables of dental caries, periodontal disease and oral hygiene, as well as explaining the dependent variable (quality of life with 5 dimensions) related to the independent variables and confounding variables.

RESULTS AND DISCUSSION

Dental and Oral Health

Various effects can arise from dental and oral health, including: the ability to speak, smile, smell food, taste or chew it, and swallow it; and the ability to produce a variety of facial expressions including self-confidence, pain, discomfort, and complex diseases of the face and head. Further attributes of oral health are fundamental components of physical and mental health and well-being along a continuum influenced by societal values and attitudes. It reflects physiological, social, and psychological attributes that are important for quality of life, and are influenced by a person's changing experiences, perceptions, expectations, and ability to adapt to circumstances (FDI World Dental Federation General Assembly, 2016). General health describes good dental and oral health and is important for well-being. It can explain freedom from orofacial pain, cancers of the mouth, throat, and soft tissues, congenital birth defects such as cleft lip and palate, and other disease disorders affecting the oral and dental tissues, which are medically known as the craniofacial complex (Sabbah et al., 2019; Glick, 2016).

Dental caries

The most common contributors to oral disease are dental caries and periodontal disease, making them one of the biggest oral problems. Consuming sweet, high-sugar foods causes the surface tissue of the teeth to demineralize. However, these diseases receive little

attention from the public and health experts, particularly those concerned with dental and oral health, because they develop slowly and are not life-threatening. (WHO, 1997; Hunter & Arbona, 1995; SURKESNAS, 2002; Situmorang, 2005).

The DMF-T index was set at 0.70 in WHO research in 1970, but increased to 2.30 in 1980 and finally reached 2.70 in 1999; Global bank data, (2000) at the age of 35-44 years showed that out of 100 countries the DMF-T index value was very high (18.0>) or 11%, moderate (9.0-13.9) or 30% and the lowest (0.0-4.9) or 19%.
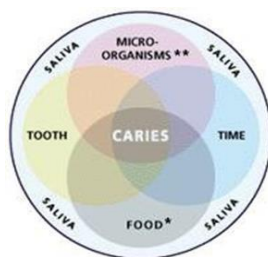

Figure 1. Factors causing caries (Kidd and Bechal, 2005)

Many factors are interrelated in the process of tooth decay formation and are known as multifactorial. In general, there are four factors that are always the main factors, including: Factors that affect the host, the composition of saliva and teeth, microorganisms, diet (including foods containing sugar), and time are as follows: (Keyes & Jordan, 1960; WHO, 1972; Situmorang, 2005; Rao, 2008; Decker & Loveren, 2003; Chemiawan, 2004).

The prevalence of caries among adults is quite high and almost worldwide attacks 100% of the population in most countries. One of the problems that often occurs in industrialized and developing countries is dental caries. (Kumar et al., (2015). The experience of dental caries varies greatly between countries, namely age, gender, socioeconomic conditions, ethnicity, diet, medical conditions of patients, oral hygiene practices and even all tooth surfaces are not susceptible to caries (Kumar et al. 2015). Dental caries affects almost 90% of adults in the United States before the age of 30. Dental caries is a disease that involves many complex risk factors and protective factors (Douglas et al., 2015). A national survey of the Timor-Leste oral health program in 2002 showed that the prevalence of dental caries was 67% in children, and the prevalence of dental caries was 90% in adults.

To measure the level of caries experience of a person, Klein, Palmer & Knutson, (1938) and the World Health Organization, (1997) introduced an index better known as the DMF-T index. The indicator of decayed teeth (Decayed), missing teeth (Missing), and filled teeth (Filled) is then called (DMF) which shows the status of dental and oral health in the community and is one of the epidemiological indices in the field of dentistry (Hatkehlouei et al., 2017).

a. Dental caries score (DMF) Table 2.1 DMF-T score (WHO, 1997)

Table 1 DMF-T Score (WHO, 1997)

SCORE	CODE	CONDITION
Teeth without caries	0	Healthy
Decayed "D" Cavities	1	Fillings with Holes (caries secondary)
	2	Good alignment
Filling "F" of filled tooth Subject 30 years old	3	Good alignment
Missing "M" missing teeth in subjects <30 years old	4	Tooth loss due to caries
Code 5 (subjects >30)	5	Lost due to other causes
Codes 6 and 7 are not included in the DMFT calculation.	6	Fissure Sealant
	7	Bridge abutment teeth, Crown or Implant
	8	Not Growing

b. Dental caries index (DMF-T)

DMF-T is the sum of Decay (D) + Missing (M) + Filling (F) individually (WHO, 1997).

c. Average DMF-T

The average DMF is the sum of all DMF values divided by the number of people examined in the population: (WHO, 1997).

d. The criteria or categories for calculating DMF-T values and average DMFT values according to WHO (1997) are as follows:

1. Average value 0.0-1.1 is very low category

2. Average value 1.2-2.6 low category

3. Average value 2.7-4.4 moderate category

4. Average value 4.5-6.5 high category

5. Average value > 6.6 is in the very high category

Periodontal Disease

Chronic inflammatory conditions of the oral cavity primarily affect the supporting tissues of the teeth. Bacteria found in the oral cavity are largely responsible for periodontal disease, including gram-negative bacteria that have been identified as pathogenic bacteria, namely Porphyromonas gingivalis, Aggregabacter actinomycetemcomitans, Fusobacterium nucleatum, and Bacteroides forsythus (Caton, 2018). The etiology of periodontal disease can generally be categorized into two parts: local (extrinsic) factors and systemic (intrinsic) factors. The environmental conditions of the teeth and mouth are local factors that cause periodontal disease. Bacterial plaque, calculus (the largest macroscopic structure), food adhesion, physical characteristics of food, iatrogenic factors, and even occlusal trauma are all local factors.

To evaluate the clinical condition of the periodontium, detect signs of inflammation, and the periodontal tissue response related to inflammatory lesions and surrounding tissue damage, a diagnosis, treatment plan, and accurate measurement instruments are required. Generally, the procedure involves measuring the depth of the gum pocket and the level of gum attachment using a periodontal probe, as well as assessing bleeding and its severity (Perry & Beemsterboer, 2007).

Table 2 Indicators, criteria, and scores for gingivitis and periodontal disease

Indi-office	CRITERIA	CONDITION (SCORE)				
		Healthy	Light	Current-ly	Critical	Heavy
CPI	Healthy periodontium	0				
	In a way direct or with the help of a mouth mirror visible gingival bleeding after probing		1			
	When probing felt					

existence calculus But all over part problem colored black Still seen			2	
There is pocket with depth of 4 or 5 mm (gingiva is at on part problemcolored black)				3
Pocket with a depth of 6 mm (part prom colored black No seen again)				4

Oral Hygiene (Oral Hygiene)

Oral hygiene is the act of brushing teeth, caring for the gums in the oral cavity to keep them clean and healthy and prevent tooth decay and gum disease. According to WHO (1994), the main factor in creating healthy teeth and mouth is Oral Hygiene. The accumulation of food residue on the surface of the teeth is associated with a high prevalence and severity of periodontal disease which results in poor oral hygiene. The data obtained can help develop a dental and oral hygiene plan, as well as the implementation of educational strategies and evaluation of the results of patient oral hygiene maintenance instructions that will be carried out by health workers, especially dentists. (Larasati, 2014).

The assessment criteria for the debris index and calculus index examinations according to Gree and Vermillion 1964 and (John, 2003; Perry and Beemsterboer, 2007) are as follows:

Table 3 Assessment Criteria for Debris Index Classification and Index Calculus

Score	CRITERIA	
	Debris Index	**Index Calculus**
0	No soft debris (plaque) or stein on the surface of the tooth crown	No Calculus
1	Soft debris (plaque) covers the crown of the tooth by 1/3 or less than 1/3 (<1/3) tooth surface	There is supragingival calculus on ⅓ of the gingiva of the tooth surface.
2	Soft debris (plaque) covers more than 1/3 (>1/3) of the tooth surface but not more than 2/3 (>2/3) of the crown tooth surface	There is supragingival calculus covering more than ⅓ but not more than 2/3 of the gingiva of the tooth surface or there is subgingival calculus in one place. around the neck of the tooth

3	Soft debris (plaque) covers more than 2/3 (>2/3) of the crown of the tooth surface	There is supragingival calculus covering more than 2/3 of the gingiva of the tooth surface or there is subgingival calculus in the form of a black ring/band surrounding the tooth. tooth neck.

The OHI-S was chosen for the examination of facial and lingual surfaces on six different tooth surfaces, four of which were posterior teeth and two anterior teeth. The OHI-S score was obtained by adding the calculus index and debris index values. The OHI-S score classification was with score values (Good: 0.0-1.2), (Moderate: 1.3-3.0) and (Poor: 3.1-6.0) (Gree & Vermillon, 1964; Pivotto. Et al., 2013).

CONCLUSION

Oral health is a crucial component of overall health, directly impacting a person's quality of life. Oral health is a fundamental human right and is closely linked to physical and psychological well-being. Maintaining optimal oral health, including proper dental hygiene and care, not only prevents diseases such as dental caries and periodontal disease, but also supports important functions such as speaking, eating, and smiling, which are essential for social interaction and self-esteem. Poor oral health, such as untreated dental caries, can cause significant discomfort, functional limitations, and even psychological distress, ultimately impacting an individual's quality of life. The prevalence of oral diseases such as dental caries and periodontal disease is high worldwide, with significant socioeconomic and health impacts. Therefore, improving oral hygiene practices and providing timely treatment are crucial to preventing the progression of oral diseases, which in turn can improve a person's physical, emotional, and social well-being. This underscores the importance of oral health in maintaining overall health and enhancing quality of life.

REFERENCE

Adrin, F., 2023. Faktor Resiko Penyakit Gigi dan Mulut.

Anand R, Dhingra C, Prasad S, Menon I. Betel nut chewing and its deleterious effects on oral cavity. J Cancer Res Ther. 2014 Jul 1;10(3):499

Andrade E. et al., 2017. Epidemiology of Periodontal disease in Uruguay : Past and Present; DOI 10.22592/o2017/n3a3

Andrade FB. Andrade FCD. 2019. Socioeconomic Inequalities in Oral Health- Related Quality of Life among Brazilians: A Cross-Sectional Study. Dent. J. 2019, 7, 39; doi:10.3390/dj7020039

Anggraini, L.D., Andriani, I., 2022. Pengetahuan Kesehatan Gigi pada Anak Sekolah Dasar. Prosiding Seminar Nasional Program Pengabdian Masyarakat. https://doi.org/10.18196/ppm.43.686

Babo Soares L. F. Opportunities in oral health policy for Timor-Leste, WHO SEARO PH. J 2016; 5(2)

Babo Soares LF. 2016. The Association of Socioeconomic Status and Dental Caries Experience in Children in Dili, Timor-Leste. J. Pub. Health 1-9. DOI: 10.1177/1010539516667783

Babo Soares LF. 2016. The oral health of Children in the District of Dili, Timor- Leste Brennan BS.

Babo Soares LF. Allen PL. Kingi J. Robert-Thomson K. Cromcobe L. 2016. Changes in the oral health of the children of Dili, Timor-Leste, between 2002 and 2014. http://www.rrh.org.au

Baiju, R., Peter, E., Varghese, N., Sivaram, R., 2017. Oral health and quality of life: Current concepts. Journal of Clinical and Diagnostic Research 11, ZE21–ZE26. https://doi.org/10.7860/JCDR/2017/25866.10110

Bhatnagar, D., 2021. Oral health: A gateway to overall health. Contemp Clin Dent. https://doi.org/10.4103/ccd.ccd_597_21

Caton JG et al. 2017. New classification scheme for periodontal and peri-implant diseases and conditions – Introduction and key changes from the 1999 classification. J Clin Periodontol. 2018;45:45(Suppl 20);S1–S8. DOI: 10.1111/jcpe.12935

Caton JG. 2018. A new classification scheme for periodontal and peri-implant diseases and conditions Introduction and key changes from the 1999 classification. Periodontology J. Clin. DOI: 10.1111/jcpe.12935

Chaffee, B.W., Rodrigues, P.H., Kramer, P.F., Vítolo, M.R., Feldens, C.A., 2017. Oral health-related quality-of-life scores differ by socioeconomic status and caries experience. Community Dent Oral Epidemiol 45, 216–224. https://doi.org/10.1111/cdoe.12279

Chen, P.H., Mahmood, Q., Mariottini, G.L., Chiang, T.A., Lee, K.W., 2017. Adverse health effects of betel quid and the risk of oral and pharyngeal cancers. Biomed Res Int. https://doi.org/10.1155/2017/3904098

Da, R., Moreira, S., 2012. Epidemiology of Dental Caries in the World.

Garg, A., Chaturvedi, P., & Gupta, P. C. 2014. A review of the systemic adverse effects of areca nut or betel nut. Indian journal of medical and paediatric oncology, 35(01), 3-9.

Glick M. et al., 2016, A new definition for Oral health developed by the FDI World Dental Federation Oepns the door to a universal definition of oral health. http://dx.doi.org/10.1016/j.adaj.2016.10.001

Haag DG. 2017. Dimensions of oral conditions and health-related quality of life among adults: a population based study. Australian Research Centre for Population Oral Health (ARCPOH) Adelaide Dental School The University of Adelaide.

Haag DG. Peres KG. Balasubramanian M. Brennan DS. 2017. Oral Conditions and Health-Related Quality of Life: A Systematic Review. Research J Dent. Vol. 96(8) 864–874.

Ilham, I., 2021. Hubungan Sosio Antropologi Kesehatan, Budaya dan Gizi. Jurnal Universitas Islam Negeri Alauddin.

Jain, V., Cb, N., Srivastava, B.K., 2018. Comparison of quality of life among dental caries and periodontal patients using EuroQoL-5D in KLE society'sinstitute of dental sciences, Bangalore: A cross-sectional study. ~ 4 ~ International Journal of Applied Dental Sciences 4, 4–08.

John, M.T., 2020. Foundations of oral health-related quality of life. J Oral Rehabil. https://doi.org/10.1111/joor.13040

Kane, S.F., 2017. The effects of oral health on systemic health.

Kathryn K. 2018. FDI World Dental Federation Annual Report 2018 Hofstede G.2011. Dimensionalizing Cultures: The Hofstede Model in Context

Lawal FB. et al. 2015. Impact of Oral Health on The Quality of Life of Elementary School Teachers. Ethiop J Health Sci. Vol. 25, No. 3 doi: 10.4314/ejhs.v25i3.4

Lima SLA. 2018. Impact of untreated dental caries on the quality of life of Brazilian children: population-based study. International J. Paediatric Dent. DOI: 10.1111/ipd.12365

Liu, Y. J., Peng, W., Hu, M. B., Xu, M., & Wu, C. J. 2016. The pharmacology, toxicology and potential applications of arecoline: a review. Pharmaceutical Biology, 54(11), 2753-2760.

Liza MZ, et al. 2019, The Influence of Oral Health Factors on the Quality of Life in Older People : A Systematic Review, Vol.XX, No. XX,1- 17.doi:10.1093/geront/ gnz105 Lertpimonchai A. 2017. The association between oral hygiene and periodontitis: a systematic review and meta- analysis. International J. Dent. doi: 10.1111/idj.12317

Lopes S. 2017. Em Números Timor-Leste In Figures. 8º Edição. www.statistics.gov.tl

Manapoti JP. Chava VK. Reddy BVR. 2019. Evaluation of oral health-related quality of life among professional students: A cross-sectional study. http://www.jiaphd.org.

Masumo, R.M., Ndekero, T.S., Carneiro, L.C., 2020. Prevalence of dental caries in deciduous teeth and oral health related quality of life among preschool children aged 4-6 years in Kisarawe, Tanzania. BMC Oral Health 20. https://doi.org/10.1186/s12903-020-1032-x

Melo P. 2015. Portuguese self-reported oral-hygiene habits and oral status. International J. Dent. doi: 10.1111/idj.12273

Moeti M. 2016. Promoting Oral Health in Africa. Prevention and control of oral diseases and noma as part of essential noncommunicable disease interventions. ISBN: 978-929023297-1 (NLM Clas.: WU 140).