

**PREVALENCE OF PERIODONTAL DISEASE AND ORAL HEALTH-
RELATED QUALITY OF LIFE AMONG ADULTS
SEEKING PRIMARY CARE AT FAMILY HEALTH CENTERS IN
ERNAKULAM DISTRICT, KERALA**

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**Dissertation submitted in partial fulfilment of the requirements for the award
of the degree of**

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Dr Merrin Varghese

DECLARATION

I hereby declare that this dissertation titled – “Prevalence of periodontal disease and oral health-related quality of life among adults seeking primary care at Family Health Centers in Ernakulam district, Kerala” is a bonafide record of my original research. It has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published and unpublished work of others has been duly acknowledged in the text.

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CERTIFICATE

Certified that the dissertation titled - “Prevalence of periodontal disease and oral health-related quality of life among adults seeking primary care at Family Health Centers in Ernakulam district, Kerala” is a record of the research work undertaken by Dr Merrin Varghese, in partial fulfilment of the requirements for the award of the degree of Master of Public Health under my guidance and supervision.

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GLOSSARY OF ABBREVIATIONS

Abbreviation	Full form
APL	Above Poverty Line
BPL	Below Poverty Line
CAD	Coronary Artery Disease
CEJ	Cemento-Enamel Junction
COPD	Chronic Obstructive Pulmonary Disease
CPI	Community Periodontal Index
DALY	Disability Adjusted Life Years
FDI	Federation Dentaire Internationale
FHCs	Family Health Centers
LOA	Loss Of Attachment
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
NCD	Non-Communicable Disease
NHANES	National Health and Nutrition Examination Survey
ODK	Open Data Kit
OHIP	Oral Health Impact Profile
OHRQoL	Oral Health-Related Quality of Life
PDL	Periodontal Ligament
WHO	World Health Organization

ABSTRACT

Background

Oral conditions impose a substantial public health burden. Periodontal disease, a major component of oral health burden, is preventable from advancing to an irreversible stage. However, early identification and management of periodontal conditions are often hindered in the absence of optimal care in primary care settings. Therefore, this study aimed to examine periodontal disease's prevalence and risk factors in primary care settings in Ernakulam district, Kerala.

Methods

A cross-sectional study was conducted among patients seeking primary care aged between 30 and 64 years. Eligible patients were selected from the outpatient departments of 10 randomly selected Family Health Centers in Ernakulam. The data collection process comprised three main components: an interview schedule, the Oral Health Impact Profile-14 questionnaire for evaluating Oral Health-Related Quality of Life, and a clinical examination utilizing the World Health Organization's Community Periodontal Index to assess periodontal status. Bivariate associations were analysed using the Chi-square test, while multiple logistic regression was employed to determine the factors correlated with periodontal disease.

Result

In total, 420 patients participated in the study (response rate was 90.52%). The overall prevalence of periodontal disease was 59 percent (95% CI: 54.3-63.8). The missed opportunity to identify and manage periodontal disease in primary care settings was 79.8 percent. A higher prevalence of periodontal conditions in older age groups (compared to younger age groups) and lower education levels (compared to higher educational levels) was observed. The prevalence of periodontal disease was higher among individuals with comorbid conditions compared to those without any reported medical conditions. Individuals who smoked, chewed tobacco, or consumed alcohol showed higher disease prevalence compared to non-users. Those who reported brushing their teeth twice or more daily identified with a lower periodontal disease prevalence than those who brushed once daily. Multiple logistic regression analysis identified age group (AOR: 6.7, 95%CI: 2.6-17.2),

socio-economic status (AOR:0.3, 95%CI: 0.2-0.5), frequency of brushing (AOR: 0.11, 95%CI: 0.1-0.2), smoking status (AOR: 7, 95%CI: 1.5-33.2) and self-rated opinion about teeth (AOR: 4.3, 95%CI: 1.4-13.1) as factors associated with periodontal disease adjusted for other variables. The Oral Health-Related Quality of Life was compromised among individuals with periodontitis compared to those without the condition.

Conclusion

Given the higher prevalence and missed opportunities to identify and manage periodontal disease, integrating preventive dental services into primary care settings is strongly recommended. Initiating dental camps in primary care, routine dental evaluation of all patients seeking care from primary care institutions, and referral of patients to existing government dental services represent initial steps in strengthening opportunistic screening for periodontal conditions and preventing progression to periodontitis.

CHAPTER 1

BACKGROUND

1.1 Definition of oral health

“Oral health is multifaceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow, and convey a range of emotions through facial expressions with confidence and without pain, discomfort, and disease of the craniofacial complex (head, face, and oral cavity)” (FDI World Dental Federation, 2016).

1.2 Framework of Oral Health Definition

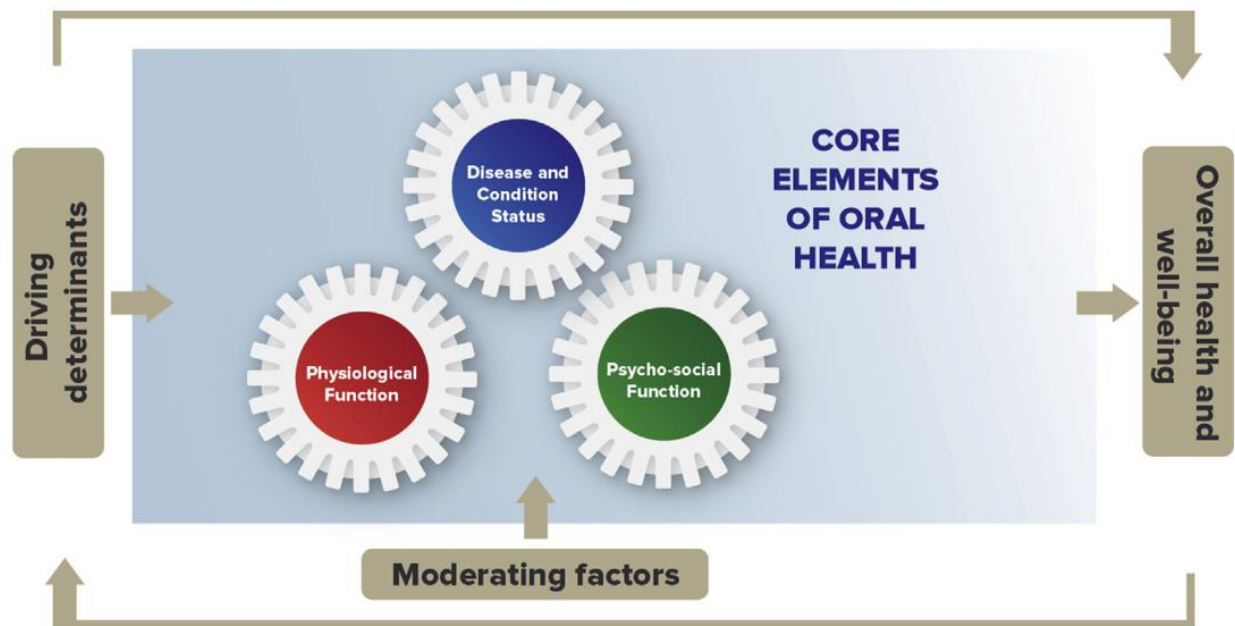


Figure 1.1: Framework of oral health definition

Source: (Glick et al., 2016)

Disease and condition status - Denotes a point at which the disease has progressed to a certain degree of severity, including pain and discomfort.

Physiological function - Describes the ability to carry out a range of tasks, such as speaking, smiling, chewing, and swallowing.

Psychosocial function - The connection between oral health and mental well-being, which includes ability to communicate effectively and engage comfortably in social occasions.

Driving determinants - The social and physical environment, health practices, genetics and biology, and access to healthcare are the five main components.

Moderating factors - Factors influencing how one subjectively evaluates their own oral health (Glick et al., 2016).

1.3 Burden of oral diseases – Global scenario

Severe periodontal disease was the 11th most common condition in the world as per the Global Burden of Disease Study (2016) report (Nazir et al., 2020). Globally, dental caries is the predominant ailment among children, particularly prevalent in middle-income nations, yet the condition often remains untreated due to the costly nature of treatment, insufficient services, or inaccessibility for beneficiaries. About 5 percent to 20 percent are afflicted by periodontal diseases. Oral cancer is the third most common cancer in South Asia and the eighth most common globally (FDI World Dental Federation, 2015). Tooth pain is also associated with decreased productivity (*Oral Health in America: Advances and Challenges [Internet]*, 2021).

Oral disorders impact approximately 3.5 billion individuals worldwide, making them one of the most prevalent noncommunicable diseases. Over three decades, the incidence of oral disorders has surged by 50 percent, with associated Disability Adjusted Life Years (DALY) rising by 75 percent. Low-income countries have experienced the most significant load, followed by lower-middle, upper-middle, and high-income countries. Dental caries, which affects about two billion people, is the most prevalent oral disease. Periodontal disorders, which impact one billion people, come in second. A significant portion of children, over two-thirds, experience cavities in their primary teeth, with many cases left untreated. Additionally, there are approximately 35 crore cases of unreplaced missing teeth globally. Reports indicate that the number of instances of oral diseases exceeds that of the five major non-communicable diseases (NCD) (mental disorders, cardiovascular disease, diabetes mellitus, chronic respiratory illnesses, and malignancies) (World Health Organization, 2022).

Despite rising numbers, oral health continues to be a disregarded concern in healthcare systems. Approaches to preventing oral health conditions are not meeting their targets. Many people do not have access to quality, complete dental care (World Health Organization, 2022). The Institute for Health Metrics and Evaluation (2016) reports that one of the top 10 worldwide causes of years lived with a disability is untreated dental illness (*Oral Health in America: Advances and Challenges [Internet]*, 2021).

1.4 Burden of oral diseases – Indian scenario

A study was done by Batra et al. to analyze the prevalence patterns of oral diseases across different states and union territories of India from 2001 to 2004. The sample consisted of children aged 5,12,15 and adults aged 35-44 and 65-74. Dental caries was found to be highly prevalent in children; missing teeth were more common in the age group 65-74. There was a high proportion

of untreated caries. The periodontal disease prevalence was as high as 89.2 percent, with the trend increasing with age. Rural residents were more affected than their urban counterparts in both these oral diseases. Forty two percent of 35-44 aged had malocclusion, of which more were males. Fluorosis was more prevalent in children (12 percent) and was commonly observed in Haryana, UP and Andhra Pradesh. The prevalence of oral mucosal lesions and edentulousness was highest in older adults (Batra et al., 2020).

Unattended dental conditions can significantly impair an individual's physical, mental, and social well-being, while restricting their functional abilities. The clinician's role extends beyond restoring oral function; they also play a crucial role in understanding and promoting the overall well-being of their patients, considering the significant impact of oral health on quality of life. The World Dental Federation has supported various policy statements concerning dental health and patient welfare. These statements advocate for including oral health-related quality of life in dental research and emphasize the importance of factors such as masticatory efficiency, having an adequate number of teeth, and addressing oral health concerns to improve overall quality of life (Hescot, 2017).

CHAPTER 2

LITERATURE REVIEW

2.1 The periodontium

“The gingiva, periodontal ligament (PDL), cementum, and alveolar bone collectively form the periodontium (figure 2.1), serving as the investing and supporting tissues of the tooth.” It is separated into two sections: the attachment apparatus, which is made up of the cementum, alveolar bone, and periodontal ligament, and the gingiva, which is primarily responsible for safeguarding the underlying tissues (Newman et al., 2006).

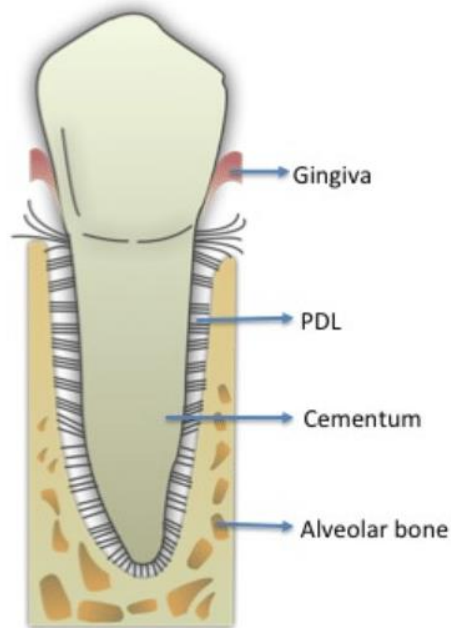


Figure 2.1: The periodontium

Source:(Perillo et al., 2020)

2.2 Definitions of periodontal conditions

According to the American Academy of Periodontology, the definitions are as follows: (American Academy of Periodontology, 2012).

Periodontal disease:

“The pathologic processes affecting the periodontium; most often gingivitis and periodontitis.”

Periodontitis:

“Inflammation of the periodontal tissues resulting in clinical attachment loss, alveolar bone loss, and periodontal pocketing.” The figure 2.2 shows a clinical case of adult periodontitis.

In the past, slowly progressing periodontitis was referred to as chronic periodontitis, while rapidly progressing disease was termed aggressive periodontitis.

Gingivitis:

“Inflammation of the gingiva.”

Periodontitis can be distinguished from gingivitis by periodontal pocketing (figure 2.3) greater than 3 mm, radiographs showing loss of bone surrounding the teeth (figure 2.4), and loose teeth when in advanced stages (Chapman and Felton, 2021).



Figure 2.2: Adult periodontitis

Source: (Chapman and Felton, 2021)



Figure 2.3: True periodontal pocketing

Source: (Chapman and Felton, 2021)

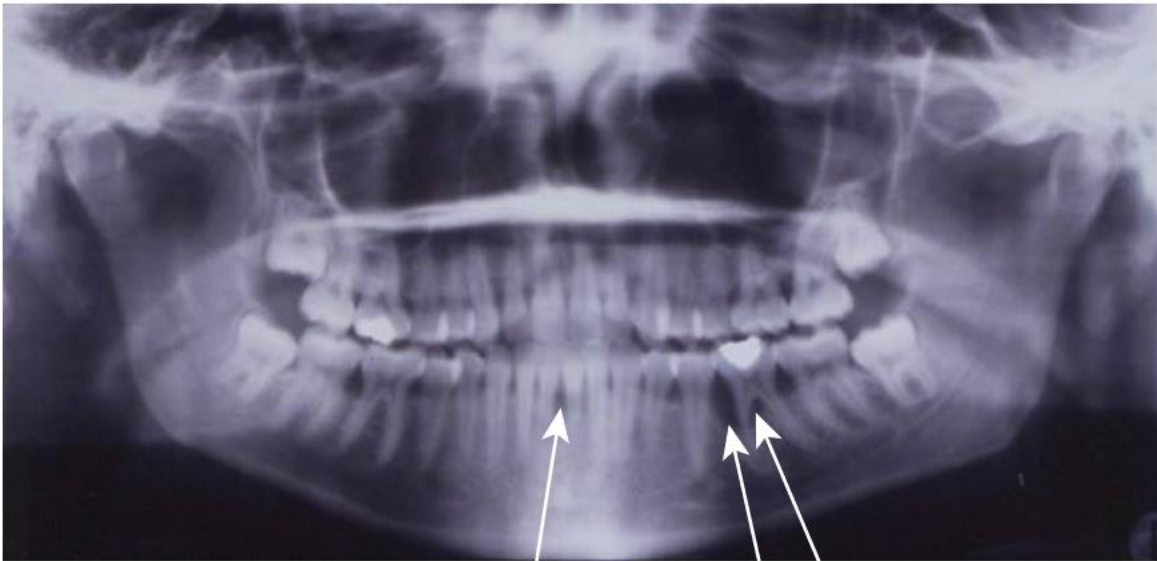


Figure 2.4: Radiograph showing bone loss associated with periodontitis

Source: (Chapman and Felton, 2021)

2.3 Etiological factors of periodontal disease

2.3.1 Primary factors of periodontitis: (Chapman and Felton, 2021)

The primary cause is a progression of gingivitis, though it does not always happen. Approximately 10-15 percent of gingivitis patients may be susceptible to developing periodontitis.

2.3.2 Secondary factors of periodontitis: (Reddy S, 2014)

➤ Anatomic factors

Tooth anatomy

Crown shape and length

Cervical enamel projections

Root morphology

Furcation ridges

Enamel pearls

Tooth arch relationships

Crowded dentition

Contact points

Single standing tooth

Stacked molars

Alveolar bone

Local excrescences

Alveolar bone defects

Soft tissues

False pockets

High frenal attachments

Incompetent lips

➤ Local factors

Dental plaque

Dental calculus

➤ Systemic conditions

2.4 Pathogenesis of periodontal disease

Bacterial biofilm acts as the primary site for the onset of periodontal inflammation. Biofilms are natural communal aggregations of microorganisms that may form on wide range of surfaces, as described by Lindhe (Reddy S, 2014). *Porphyromonas gingivalis* is recognized as the pivotal pathogen responsible for triggering periodontal inflammation. This bacterium possesses the capacity to regulate the local host response selectively. The resistance or sensitivity to periodontal disease arises from a multifaceted interplay among genetic, behavioral, aging, metabolic, and environmental factors (Hajishengallis et al., 2020; Reynolds, 2014).

Once a periodontal destruction has initiated, the local immune response tries to overpower its effect, on the other hand, local bacterial colonisation will generate systemic consequences, which explains the reciprocal relationship between periodontal health and systemic health. Adverse medical conditions including heart disease or stroke can be exacerbated by chronic periodontitis (Newman et al., 2006). Diabetes and periodontitis has a genuine reciprocal correlation, therefore, effectively addressing one condition can beneficially affect the other (Chen and Hunter, 1996). The most well-established modifiable risk factor for periodontal disease development is smoking. Evidence also points to a connection between stress levels, diet, alcohol intake, socioeconomic position, and periodontal health in addition to smoking (Chapple et al., 2018). Age, smoking, diabetes mellitus, and the presence of subgingival microbiota are risk indicators for attachment loss (Grossi et al., 1994).

2.5 Risk factors of periodontal disease

2.5.1 Age

As people age, the likelihood of periodontal disease increase (Bansal et al., 2015). In a community-based study done in Delhi among 448 adults aged above 60 years, the prevalence of periodontal pockets, gingival bleeding, and loss of attachment were found to be 90.3 percent, 89.1 percent, and 96.6 percent, respectively (Srivastava et al., 2013). Late phases of periodontal conditions were more common among older adults, while early-phases were more common among young adults (Bansal et al., 2015).

2.5.2 Socioeconomic and educational status

People with lesser socioeconomic status and education levels tend to have more severe cases of periodontal disease (Gundala and Chava, 2010). According to the National Health and Nutrition Examination Survey (NHANES) and a cohort research, there is a negative correlation between socioeconomic position and educational attainment with the prevalence of periodontal disease (Walther et al., 2022). Lower socioeconomic and educational positions do not appear to be associated with severe periodontal disease when oral hygiene and smoking are considered when determining periodontal status. Thus, socioeconomic or educational standing does not seem to directly impact the pathophysiology (Newman et al., 2006).

2.5.3 Gender

Men exhibit greater susceptibility to periodontitis than women (Bansal et al., 2015; Batra et al., 2014; Reynolds, 2014). Males had a higher prevalence of periodontal disease (93.8 percent) as compared to females (89.5 percent) in a study done in Uttar Pradesh among 20-49 aged rural

population. Females reported more oral health problems than males. Males exhibited a higher prevalence of moderate and severe periodontitis compared to females (Bansal et al., 2015).

2.5.4 Tobacco and alcohol

Smoking significantly contributes to the development of periodontitis and tooth loss. Smokers are three times more likely to experience severe forms of periodontal disease compared to non-smokers (Nazir, 2017). Nicotine has been implicated in causing the breakdown of periodontal tissues, as demonstrated in animal-based research (Nociti et al., 2001). Tobacco smoking alters both the local and systemic host response to inflammatory reactions. But the impact of smoking on the periodontium can be reversed upon cessation of smoking (Zee, 2009). There is limited evidence indicating that drinking alcohol may be linked to a greater degree of clinical attachment loss (Reynolds, 2014).

In a cross-sectional study conducted among 2156 subjects in Karnataka, where 68.9 percent were tobacco users, the prevalence of periodontal disease was nearly 100 percent. Additionally, approximately half of the participants exhibited loss of attachment. The study revealed a direct correlation between the quantity of tobacco consumed (both chewing and smoking tobacco) and the occurrence of periodontal disease (Mohamed and Janakiram, 2013).

2.5.5 Oral hygiene habits

Inadequate oral hygiene practices play a significant role in developing periodontal diseases. Incorrect brushing methods and lack of knowledge about the use of dental floss, interdental cleaning aids, and mouthwashes lead to plaque accumulation on teeth and gums. This buildup creates an environment conducive to microbial growth, which subsequently triggers inflammatory responses (Nazir et al., 2020; Reddy S, 2014).

Subjects who brushed their teeth regularly had approximately 34 percent significantly lower odds of having periodontitis. A study indicated a graded relationship between oral health and periodontitis, where moderate and poor oral health is associated with a twofold and fivefold increase in the risk of developing periodontitis, respectively, compared to good oral health (Lertpimonchai et al., 2020).

2.5.6 Systemic conditions

In a hospital-based study involving 280 patients with NCD, smoking emerged as a shared risk factor between periodontitis and diabetes. Elevated levels of C-reactive protein were a common link between individuals with both heart disease and periodontal disease, indicating an inflammatory response. Moreover, periodontitis showed a positive correlation with total cholesterol and low-density lipoprotein cholesterol levels, although a temporal relationship could not be established (Janakiram et al., 2019).

Additionally, research has indicated a connection between obesity, metabolic syndrome, and periodontal disease (D'Aiuto et al., 2008; Linden et al., 2013; Reynolds, 2014).

Periodontal disease is recognized as the sixth complication of diabetes mellitus (Reddy et al., 2017). Patients with uncontrolled diabetes often exhibit a propensity for alveolar bone destruction. Additionally, the occurrence of periodontal abscesses with significant exudative discharge is common in these individuals (Reddy S, 2014). Numerous studies have demonstrated that individuals with diabetes have an increased likelihood to acquire periodontal disease than those without diabetes (Preshaw et al., 2012; Rajhans et al., 2011; Reddy et al., 2017). The degree of glycaemic control plays a crucial role in determining the susceptibility to periodontal disease (Preshaw et al., 2012). Severe periodontitis was found to elevate the incidence of type 2 diabetes mellitus by 53 percent (Wu et al., 2020). In a hospital-based cross-sectional study involving 1500

individuals aged 15 to 76, it was discovered that the prevalence of periodontal disease was 86.8 percent (Rajhans et al., 2011). In another study conducted in Uttar Pradesh among 500 patients with type 2 diabetes mellitus, it was found that 95.1 percent exhibited at least some degree of periodontal destruction (Singh et al., 2019).

A study conducted in Kerala among 1285 participants aged 20 - 79 aimed to investigate the risk factors for coronary artery disease (CAD). The findings revealed that while periodontal disease was not identified as a significant risk factor for CAD in the urban population, it was notable in the rural population according to univariate logistic regression analysis. However, the frequency of CAD was higher among participants with periodontal disease than those without periodontal disease in rural and urban areas, with a more pronounced difference observed in rural regions. Specifically, the frequencies of CAD associated with periodontal disease in rural and urban populations were 82.6 percent and 40.5 percent, respectively. Male sex and dyslipidemia were identified as shared risk factors between periodontal disease and CAD. Additionally, an increased risk of CAD was observed among individuals from low socioeconomic backgrounds in the presence of periodontal disease (Dain et al., 2021).

The pathophysiology of rheumatoid arthritis and periodontal disease are similar, and a significant correlation between both has been observed. Smoking is best documented as contributing to rheumatoid arthritis susceptibility (Detert et al., 2010).

In a study conducted among Koreans aged 40 years and older, it was found that severe periodontitis was strongly linked to Chronic Obstructive Pulmonary Disease (COPD) in males, even after adjusting for confounding factors (Chung et al., 2016; Nazir et al., 2020).

Studies have shown a bidirectional relationship between kidney disease and periodontal disease (Fisher and Taylor, 2009; Nazir, 2017).

2.5.7 Professional dental visits

Subjects who regularly visited dentists at least once a year had a 44 percent lower risk of periodontitis than those who did not. Consistent toothbrushing and regular dental visits were associated with a 34 percent and 32 percent decrease in the likelihood of periodontitis, respectively (Lertpimonchai et al., 2020).

2.5.8 Oral health-seeking behaviour

Despite continued efforts to raise awareness about the importance of oral health, it is neglected by the rural population as observed in a study done in Maharashtra (Deolia et al., 2020). Oral health seeking is more related to pain (Bommireddy et al., 2017; Deolia et al., 2020). People choose dental facilities where there is low spending (Deolia et al., 2020), while accessibility was the reason in another study (Bommireddy et al., 2017). One-fourth of participants in a study mentioned fear as a reason for omitting dental care. Nearly half of the participants have never consulted a dentist (Bommireddy et al., 2017; Deolia et al., 2020) and among them 75 percent expressed a need for dental care (Deolia et al., 2020). However, 45 percent opined that dental care is not a necessity. Women cited accessibility as the reason for preferring specific types of health facilities (Bommireddy et al., 2017). According to these study results, people's behaviour in seeking oral health care is still at a lesser level, and they mostly seek care because they are in pain or uncomfortable.

2.6 Indices used to measure gingival and periodontal disease

A range of indices were employed to evaluate the state of periodontal disease, which are summarised in table 2.1 (Boban, 2014; Dhingra and Vandana, 2011; Peter, 2017).

Table 2.1: Gingival and Periodontal Indices

Sl. No	Name of the index	Author	Year
1.	Papillary-Marginal attachment Index (PMA)	Maury Massler and Schour	1944
2.	Gingival Index	Loe H and Silness J	1963
3.	Russell's Periodontal Index (PI)	Rusell AL	1956
4.	Periodontal Disease Rate Index	Sandler and Stahl	1959
5.	Periodontal Disease Index (PDI)	Sigurd P Ramfjord	1959
6.	Gingival- bone count index	Dunning JM, Leach LB	1960
7.	Gingival periodontal index	O'Leary TJ, Gibson WA, Shanon IL, Schuessler CF, Nabers CL	1967
8.	Navy Periodontal Disease Index	Grossman and Fedi	1974
9.	Community periodontal index for treatment needs (CPITN)	World Health Organization (WHO)- Ainamo et al.	1982
10.	Periodontitis Severity Index	Adams and Nystrom	1986
11.	Extent and severity index	JP Carlos, MD Wolfe, A Kingman	1986
12.	National Institute of Dental and Craniofacial Research (NIDCR) protocol	NIDCR	1988–1994
13.	Periodontal Index for Treatment	Eaton and Woodman	1981–1985

14.	Periodontal Screening and Recording Index	American Academy of Periodontology	1991
15.	Community Periodontal Index (CPI)	World Health Organization (WHO)	1997
16.	Periodontitis Index	Albandar et al. (1999)	1999
17.	Dichotomous Periodontal Index	Dye et al., Tezal et al., Borrell et al., Brothwell and Ghiabi	2002-2009
18.	Genetic Susceptibility Index for periodontal disease	Moustakis et al.	2007

2.7 Studies on prevalence of periodontal disease

Periodontal disease comprises gingivitis (reversible) and periodontitis (irreversible). One of the two most significant oral illnesses that contributes to the worldwide burden of chronic illness is periodontal disease, making it a significant international public health issue.

In a study done among 15-18-year-old school students across five districts in the state of Kerala to understand the predictors of periodontal disease, gingival bleeding, periodontal pockets, and loss of attachment were found in 42 percent, 13 percent, and 2 percent of cases, respectively. Students from rural backgrounds were more likely than those from urban backgrounds to experience gingival bleeding and periodontal pockets. Periodontal pockets were reported in 18.8 percent of students with poor oral hygiene and 7.5 percent with adequate oral hygiene. Malocclusion, poor dental hygiene, and sociodemographic variables were important indicators of periodontal disease in teenagers (Baiju et al., 2019).

In an epidemiological study, it was found that the highest prevalence of chronic periodontitis was found in the elderly population (82 percent), followed by adults (73 percent) and adolescents (59 percent) (Nazir et al., 2020). There is no ongoing monitoring system for oral illnesses in India, hence the only way to determine the prevalence of oral diseases in our community is to combine data from other prevalence studies. A comprehensive review and meta-analysis's aggregated analysis of prevalence data reveals that the burden of periodontal diseases among adult Indians is quite high. The combined prevalence of gingivitis was 46.6 percent, periodontitis was 51 percent, and periodontal disease was 51 percent. In contrast to other age groups, individuals 65 years of age and beyond had a greater prevalence of periodontitis (63.6 percent), whereas those under 35 years of age had a greater likelihood of gingivitis (52.9 percent). Gingivitis was more common (63.9 percent) in the urban community, but periodontal disease was more prevalent (48.9 percent) in the rural subjects (Janakiram et al., 2020). However, a Ludhiana study revealed that urban regions have higher rates of periodontal pockets and gingivitis than rural ones (Singh et al., 2005). Table 2.2 includes a few more prevalence studies.

Table 2.2: Studies on prevalence of periodontal disease

First author	Year	Study population	Place of study	Sample size	Key findings
Jayakrishna n R (R, 2000)	2000	30-50-year-old, rural population	Trivandrum	504	The prevalence of the periodontal disease was 65.3%, the prevalence increased with age, highest among tobacco users compared to non-users
Nisha Gopalankutty (Gopalankutty et al., 2020)	2020	Age 20 and above - tribal population	Palakkad	360	The prevalence of periodontal disease was 87.5%, and there was a substantial correlation found between tobacco use, poor oral hygiene practices, and negative beliefs about oral health, and periodontitis

Iris Valsan (Valsan et al., 2016)	2016	35-44 and 65-74 age group-tribal population	Kerala	420	The percentage of adults who have periodontal disease was 76.9%
Dona Boban(Boban, 2014)	2014	18-34-year-old-rural women	Ernakulam	364	Prevalence of periodontal disease was 51.6 percent
K L Vandana (Vandana and Reddy, 2007)	2006	Age between 15 and 74 – high fluoridated area	Karnataka	1020	In females, the rates of gingivitis and periodontitis were 65.9% and 32.8%, respectively, whereas in males, the rates were 75.1% and 24.2%, respectively. Periodontitis increased from 18% to 57.1% as people aged from 15 to 55 and beyond
Ramoji Rao MV (Rao et al., 2016)	2016	13-year-old and above rural population	Andhra Pradesh	470	73.62% of people had periodontal disease. Periodontal health declined with age. Compare to men (43.65%), women had a greater prevalence (56.35%)
Sahil Handa (Handa et al., 2016)	2013	5-74-year-old rural and urban population	Haryana	810	Prevalence of periodontal diseases was 65%
Batra(Batra et al., 2014)	2011	18-49-year-old rural population	Uttar Pradesh	550	Prevalence of periodontal diseases was 91.6%
Bansal (Bansal et al., 2015)	2015	15-79-year-old, dental college outpatients	Varanasi	500	Prevalence of periodontal disease was 96.3%

Sudhanshu Sanadhya (Sanadhya et al., 2015)	2013	Age between 20 and 79, dental college outpatients	Rajasthan	1200	Higher prevalence for rural population. In rural, 21.7% has pockets and 51.1% has loss of attachment. In urban, 15.2% has pockets and 43.1% has loss of attachment
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2.8 Oral Health-Related Quality of Life (OHRQoL)

Despite the fact that oral sickness is a worldwide problem, oral health policy makers often overlook its treatment and prevention since it seldom endangers life. On the other hand, dental illness can have a big effect on a person's social and psychological well-being. Problems with one's mouth can hurt one's quality of life by diminishing self-worth, social interactions, and physical abilities (Chen and Hunter, 1996).

The data supplied by these measures aids in improving understanding of how individuals perceive their oral health needs and the level of impact of the oral health issues that drive them to seek healthcare services. Over the years, many socio-dental parameters have been formulated, and a summary is provided in the table 2.3 below (Allen, 2003; Bennadi and Reddy, 2013).

Table 2.3: Various measures of OHRQoL

Name of measure	Authors	Year	Dimensions	Number of questions
Social dental scale	Cushing et al.	1986	Chewing, talking, smiling laughing, pain, appearances	14
RAND Dental Health Index	Dolan et al.	1991	Pain, worry, conversation	3
General Oral Health Assessment Index (GOHAI)	Atchinson and Dolan	1990	Chewing, eating, social contacts, appearance, pain, worry, self -consciousness	12

Dental Impact Profile	Strauss and Hunt	1993	Appearance, eating, speech, confidence, happiness, social life, relationships	25
Oral Health Impact Profile	Slade and Spencer	1994	Function, pain, physical disability, psychological disability, handicap	49
Subjective Oral Health Status	Locker and Miller	1994	Chewing, speaking, symptoms, eating, communication, social relations	42
Oral Health Quality of Life Inventory	Cornell et al.	1997	Oral health, nutrition, self-rated oral health, overall quality of life	56
Dental Impact on Daily Living	Leao & Sheiham	1996	Comfort, appearance, pain, daily activities, eating	36
Oral Health – Related Quality of Life	Kressin et al.	1996	Daily activities, social activities, conversation	3
Oral Impacts on Daily Performances	Adulyanon and Sheiham	1996	Performance in eating, appearance, speech, oral hygiene, sleeping, appearance, emotion	9
UK Oral Health-Related Quality of Life	McGrath and Bedi	2000	Eating, appearance, speech, breath odour, social life, romantic relationship, confidence, sleep, mood	16

2.9 Oral Health Impact Profile (OHIP)

“The OHIP is an instrument that measures people's perception of the social impact of oral disorders on their well-being.” It is developed upon a dental health model adapted by Locker from WHO's framework for general health (Figure 2.5) (Slade, 1997a).

Slade and Spencer (1994) created the OHIP, a patient-centered self-rating tool. An indication of how oral health issues affect people's social well-being is the OHIP. These measures are supposed to serve as an adjunct to the conventional dental indicators used in epidemiological surveys in understanding the “burden of illness” and assessing healthcare readiness to alleviate that burden.

These effects were intended to complement traditional oral epidemiological indicators of clinical disease, providing insights into the "burden of illness" within populations and assessing healthcare readiness to alleviate that burden.

2.9.1 Development of the instrument

The OHIP was developed using methods previously applied in healthcare settings to assess how treatment for illness affected one's social and functional well-being. It all started by identifying a conceptual oral health model which Locker developed from WHO's 'International classification of impairments disabilities and handicaps' (ICIDH) classifications of illness states. According to Locker's model, the effects of disease are arranged in a hierarchy. Oral disease has five consequences: impairment, functional limitation, pain and discomfort, disability, and handicap. These consequences are logically related to one another. Disease states (such as a recognizable oral health issue) may result in impairments (for instance, skeletal abnormalities or missing teeth), which may lead to functional challenges (such as reduced jaw movement and chewing problems, trouble saying words properly, deteriorated taste perception), or discomfort and pain (such as sore gums), which may lead to physical, psychological, or social disability (diminished capacity to perform daily activities such as dissatisfying diet, difficulty focusing, reluctance to smile, awkwardness in interacting with others, and strained social relationships), which may result in the individuals' handicap (communal barriers faced by disabled people) because they don't live up to the societal norms they belong to and this has a detrimental impact on their quality of life (Anagnostopoulos, 2014).

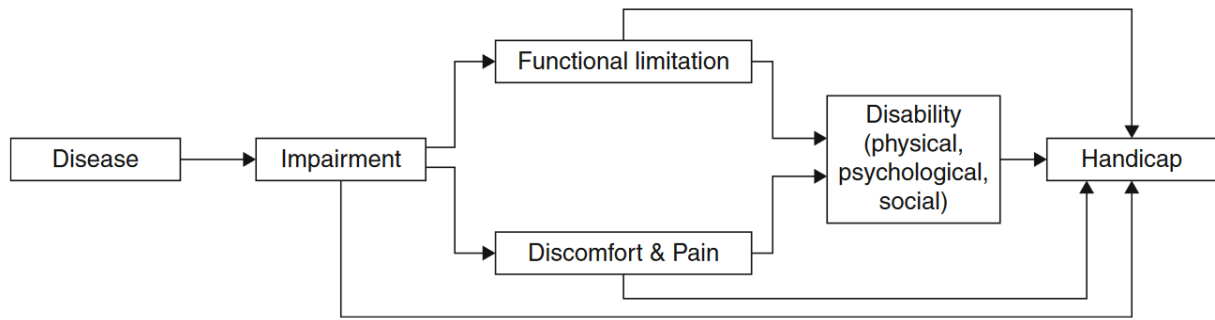


Figure 2.5: Lockers conceptual model of oral health

Source: (Anagnostopoulos, 2014)

Impact statements were developed by interviewing adult patients in Australia's public and private dental care settings. Forty-six distinct statements that fell into each of the seven fundamental categories were derived from 535 statements. For usage, three more statements from an already-existing instrument were modified for the dimension handicap. Weights for each dimension were acquired by applying Thurstone's paired comparisons method. Every weight was changed to a positive value between 0.747 and 2.555. The 49 statements restated as questions make up the OHIP questionnaire. On a five-point Likert scale, respondents are asked to rate how often they encountered each issue over a given reference period—for instance, the past one year. The five-point response categories coded as 0,1,2,3,4 are "Never," "Hardly ever," "Occasionally," "Fairly often," "Very often," respectively. There are two methods for calculating the net OHIP scores. The most straightforward approach is to sum up the number of impacts presented at a specified severity level (such "fairly often" or "very often") for every respondent. The second way is to standardize seven subscale scores, which are then added together for each respondent (Slade, 1997b).

Studies using OHIP showed that individuals with comparatively pathetic dental health defined as unreplaced edentulous spaces, persistent oral health problems for which care have not sought and periodontal pathology have higher OHIP scores. Higher OHIP scores are also found in people with

marginalized origins, insufficient professional dental visits, and dental concerns. The domain specific impact reported by subjects lined up with their clinical oral health state. For instance; compared to dentate individuals, edentulous persons experienced greater degrees of physical disability and functional limitation (Slade, 1997b).

2.9.2 Derivation of shorter form: OHIP-14

The purpose of OHIP is to provide data on subjective assumption of the effect of oral conditions on functional, physical, psychological and social dimensions of life; however, not all study settings utilize all 49 questions on the instrument. Therefore, a shorter tool was sought. Gary Slade (1997) used a controlled stepwise regression process to create OHIP-14. Two questions were kept from each of the seven dimensions in the subset of 14 questions out of the total 49 questions. Components specific to users of prostheses and questions with at least 5 percent failure to respond accurately or non-response, which were presumed to be the most difficult in terms of understanding or finishing by respondents, had been removed to derive the shorter form. Three statistical techniques were used to choose an array of items that were capable of obtaining maximum data as was practicable from the 49-item OHIP questionnaire.

Internal reliability analysis - To ascertain how eliminating a few items would affect the reliability of the tool. Cronbach's coefficient α was employed to understand this.

Principal components factor analysis - To ascertain which components in OHIP offer the widest range of answers.

Least squares regression - Every question was assessed individually for its contribution to the total R^2 value, with the questions within each domain serving as independent variables and the overall OHIP score as the dependent variable. The default stepwise procedure was used, selecting the initial 14 elements that contributed the highest R-value. The usage of a controlled regression model

came next, in which a total of fourteen questions—only two from each of the seven dimensions—were permitted, with the questions that contributed the most to R^2 being incorporated in that sequence.

The discriminant validity of the created short version of OHIP-14 was assessed by looking at whether the derived items showed an equivalent correlation to sociodemographic and clinical parameters as those of the initially developed OHIP-49.

To determine the oral status and sociodemographic characteristics connected to both the parent and derived instruments, further validity checks were modelled using multivariate and least square regressions. The number of missing teeth, the number of unreplaced edentulous areas, untreated dental caries, occlusal wear to dentin, residual roots, probing pocket depth, gingival recession, and loss of periodontal attachment were the clinical variables used. Age, sex, nation of birth, details of previous dental visit, reasons to consult dentist, felt need for oral care, affordability of dental expenses, social support, educational status, and income were the sociodemographic variables. Subsequently, variables that were not statistically significant were removed from the model. Each question's coded response was multiplied by the weights which were developed earlier using Thurstone's method of paired comparisons, and the results were totalled to create seven subscale scores, which were then summed and standardized. The 14 questions with the greatest factor loadings (0.64 or higher) were transferred to OHIP-14, which were prevailed by the handicap and two disability dimensions. This group of 14 questions explained 94 percent of the variance in the overall OHIP scores, and Cronbach's alpha was 0.88 (Slade, 1997a).

On a 5-point grading system, responses are labelled as 0=Never, 1=Hardly ever, 2=Occasionally, 3=Fairly often, 4=Very Often. Coded answers can be multiplied by weights within each dimension to provide a subscale score. Subscale scores were represented by the sum of products within each

dimension. These subscale scores were then standardized to a common mean and standard deviation (1.0 ± 1.0) and added together to generate a standardized score for every subject. When analysing relationships between explanatory variables and reported impact, standardised scores are the suggested method (Slade, 1997a).

2.10 Studies on Oral Health-Related Quality of Life and periodontal disease

Studies showed that periodontal disease negatively influences OHRQoL in adults. In 2020, Fuller et al. stated that patients with periodontitis have worse OHRQoL outcomes when compared to periodontally healthy patients, and these differences were significant and clinically meaningful (Fuller et al., 2020). Among the social domains, functional limitation, physical pain, psychological discomfort, physical disability, and psychological disability were mostly affected in periodontitis patients. In a study conducted by Needleman et al. involving 205 dental patients attending a periodontal clinic in London, 90 percent reported experiencing impacts on their quality of life. The study established associations between clinical periodontal status and self-reported symptoms of periodontal disease, for instance, 'swollen gums,' 'sore gums,' 'receding gums,' 'loose teeth,' 'bad breath,' 'toothache' and 'drifting teeth.' Patients with deep periodontal pockets exhibited a more compromised quality of life. OHRQoL measure was able to capture differences in quality of life between patients undergoing periodontal care or in the maintenance phase, who reported better quality of life compared to new patients. Physical, social, and psychological dimensions of life were reported to be impacted. Table 2.4 includes summary of a few more studies.

Table 2.4: Studies on association between oral health-related quality of life and periodontal disease.

First Author	Year	Study population	Place of study	Sample size	Key findings
Greeshma Sivadas T (Sivadas T and R Nayar, 2022)	2016	Age 18 and above, periodontitis patients-dental college outpatients	Trivandrum	158	Periodontitis has a definite impact on the OHRQoL
Neetha Bhargava (Bhargava et al., 2021)	2021	Age 18-65-patients with periodontal disease-dental institution-based	Rajasthan	200	Severe periodontitis patients had poor OHRQoL than mild periodontitis patients. Functional, physical, and psychological domains had more impacts
Sam K S Ng (Ng and Leung, 2006)	2006	Age 25-64-dental clinic outpatients	China	727	A significant association between OHRQoL and periodontal disease. Functional limitation, physical pain, psychological discomfort, physical disability, and psychological disability were the most affected
Nimali Wellapuli (Wellapuli and Ekanayake, 2016)	2016	Age 35-60-community based	Sri Lanka	1400	A significant association between chronic periodontitis and OHRQoL. When comparing moderate and severe periodontitis to no or mild instances, the prevalence of impacts was 48% and 69% greater, correspondingly. Physical pain was the severely impacted domain
Jennifer Fuller (Fuller et al., 2020)	2020	Dental hospital outpatients-case-control study	London	471	Clinically significant disparities exist in the OHRQoL between patients with periodontitis and those who are periodontally healthy

Herenia P Lawrence(La wrence et al., 2008)	2007	32 years	London	972	Oral health condition was significantly related to the measure of OHRQoL - 'physical disability,' 'physical pain,' and 'psychological discomfort' were most affected -stronger association found among females
Dayse R. D. Z. Meusel(R. D. Z. Meusel et al., 2015)	2011	30–58-year-old - hospital-based	Brazil	100	The domains physical pain, psychological disability, functional limitation, and physical disability were all significantly impacted negatively by severe periodontitis
Ashokkumar Thirunavukka rasu (Thirunavukk arasu et al., 2022)	2021	Age 18-25- educational institution-based	Saudi Arabia	1152	Physical pain and psychological discomfort were most affected
Justin Durham(Durh am et al., 2013)	2013	Dental hospital- based-case- control study	United Kingdom	178	Patients with and without chronic periodontitis differ significantly in their OHRQoL. Functional, physical, psychological, and social domains were impacted

2.11 Rationale for doing the study

"At the 2017 World Workshop, it was stated that while a patient with gingivitis can revert to a state of health, a periodontitis patient remains so for life, necessitating lifelong supportive care even after successful therapy"(EFDA, 2022). People typically wait to seek treatment for periodontal disease until it has progressed since it doesn't always cause symptoms at first. At this stage, certain procedures get expensive, which is why many people choose to have their teeth extracted rather than costly options for treatment. This underscores the importance of periodontal screening in

preventing periodontal disease which is important for maintaining OHRQoL (Chapple et al., 2018). Periodontal screening holds significant importance in primary health facilities, especially considering that many individuals from lower socio-economic backgrounds seek care there. Often, these individuals neglect their oral health either because they prioritize other health concerns or because oral care is financially out of reach.

Oral diseases create a substantial economic burden on society, largely due to delayed interventions. Information on the extent of this problem and patterns of healthcare service usage helps those in power assign resources in accordance with the changing needs of the populace (Talukdar et al., 2022). The missed opportunities in primary care to identify and effectively manage periodontal conditions have not been thoroughly studied in Kerala settings. Hence, this study aims to understand the prevalence of the disease in primary-level health facilities in Ernakulam, Kerala. This insight could aid in planning short- and long-term goals for aligning oral health care services in primary health facilities.

Most recent research on periodontitis prevalence in Kerala has focused on underserved populations or subgroups as study participants. Additionally, studies used varying definitions of periodontitis cases making comparisons difficult. This study therefore employed a standardized clinical case definition for epidemiological surveys, developed in the 2017 “World Workshop on Classification of Periodontal and Peri-Implant Diseases and Conditions framework.”

Moreover, because poor dental health can lead to pain, discomfort, and trouble eating, which may diminish overall quality of life, it has a substantial influence on all functional, physical, psychological, and social dimensions of an individual's life. Therefore, this study also looked at how people with and without a healthy periodontium differed in terms of their quality of life.

2.12 Objectives

Major objectives:

- To estimate the prevalence of periodontal disease among 30–64-year-old adults attending the outpatient department of Family Health Centre (FHCs) in Ernakulam district.

Minor objective:

- To understand the association between Oral Health-Related Quality of Life (OHRQoL) and periodontitis among the study population.
- To understand the determinants of periodontal disease among the study population.

CHAPTER 3

METHODOLOGY

3.1 Study design

A quantitative cross-sectional survey was conducted among patients seeking care from FHCs in the Ernakulam district.

3.2 Study setting

This study was conducted at FHCs located in the Ernakulam district. Ten of the 54 FHCs in the district were randomly chosen for the study.

3.3 Study population

The study involved patients who visited the outpatient department of the FHCs for seeking care during the study period and were between the ages of thirty and sixty-four. The age group 30-64 was selected because they are the working age group. After explaining the purpose of the research to the study participants, written informed consent was obtained.

Exclusion criteria:

1. Patients who were incompetent to give consent for participation
2. Patients who were completely edentulous or having complete dentures in upper and lower arches
3. Patients undergoing orthodontic treatment
4. Pregnant women

3.4 Sample size estimation

OpenEpi software 3.01 was used to estimate the sample size. Referred for sample size calculation was a community-based study by Jayakrishnan et al. (2000) (R, 2000) to estimate the prevalence of periodontal disease among adults in Trivandrum District, which reported a prevalence of 65.3 percent.

With a 65.3 percent expected prevalence, 95 percent confidence interval, 5 percent absolute precision, and a design effect of 1.2, the required sample size was 418, rounded to 420.

3.5 Sampling procedure

There were 54 FHCs in Ernakulam district. Ten FHCs were selected by means of computer-generated random numbers (Figure 3.1). To attain the sample size of 420, 42 samples were taken from each FHC. A data collecting approach was made to every fifth patient referring the patient registry of the respective FHC. When the fifth patient was unavailable, the subsequent available patient was selected for data collection.

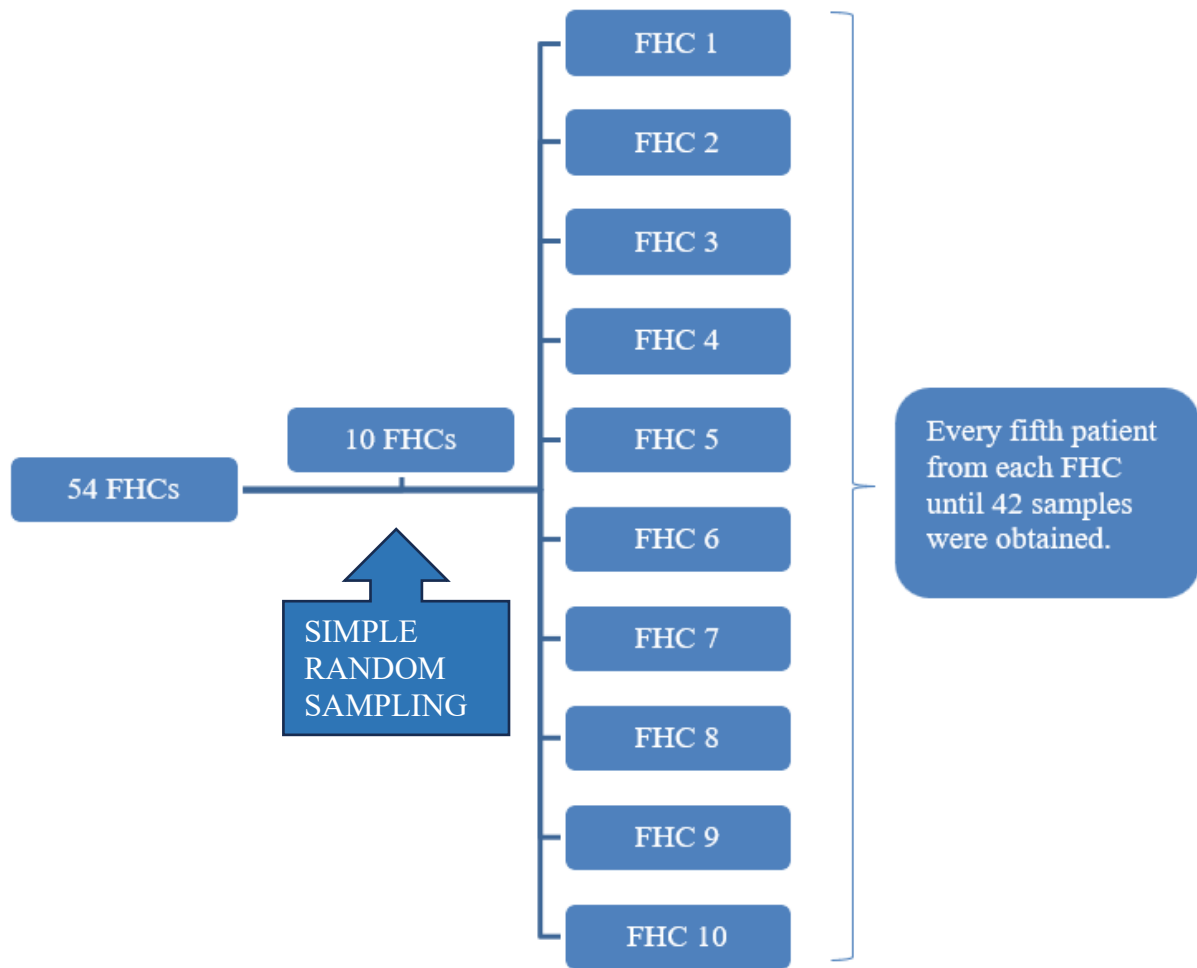


Figure 3.1: Sampling procedure

3.6 Data collection process

The FHCs' pre-check area was used for data collection. After checking their vitals, patients were approached by me to explain the purpose of the study and obtain consent. Subsequently, both interview schedules were administered. Clinical examinations were conducted immediately afterward or at the patient's convenience, after they consulted with the doctor at FHC sometime before their departure from the hospital. The examination of periodontal diseases was performed using a modified CPI index with a calibrated CPI probe and a mouth mirror. All teeth were

examined for gingival bleeding and identification of periodontal pockets. To ascertain the loss of periodontal attachment, the mouth was split into six sextants, and one index tooth from each sextant was examined. If the index teeth were absent in any of the sextants, all teeth within that sextant were examined, and the highest score recorded was utilized.

3.7 Data collection tools

A clinical examination and two interview schedules were used to gather the data.

3.7.1 Interview schedule-1

The first section (table 3.1) consisted of an interview schedule designed to gather information on socio-demographic, the presence of any systemic disorders, oral hygiene practices, self-rating of one's oral health, health-seeking behavior, and barriers to receiving professional dental care. The questions for this interview schedule were adapted from previous studies (Boban, 2014; Bommireddy et al., 2017; Deolia et al., 2020; Petersen et al., 2013; Salim and V, 2021; World Health Organization, 2020).

Table 3.1: Sections within interview schedule-1

SECTION	VARIABLES
Socio-demographic details	Age, sex, socio-economic status, place of residence, years of education, occupation
Medical history	Presence of systemic disease
Oral health status	Self-perceived status of teeth and gums, presence of removable dentures, and type of denture

Oral hygiene practice	Frequency of brushing teeth, method of tooth brushing, materials used to clean teeth, method of removing food stuck between teeth
Deleterious habits	Current or past use of smoking tobacco, smokeless tobacco and alcohol
Oral health-seeking behaviour	Dental problems in last 12 months, solution sought for the reported problem, last visit to the dentist, the purpose of visit, preferred type of facility for treatment, reasons for not utilizing public dental facilities, the barrier to seeking oral health care

3.7.2 Interview schedule-2

- The second part was the assessment of OHRQoL using the Malayalam version of the Oral Health Impact Profile (OHIP)-14 tool. As part of a study conducted at Government Dental College, Trivandrum, to assess the quality of life among periodontitis patients registered in their department, the tool was translated into the Malayalam language, which was then validated. The Malayalam version was published in their academic paper, which had open access, but permission of the author was also sought (Sivadas T and R Nayar, 2022). It consisted of 14 questions, two from each domain. There were seven domains: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap. Responses were made on a 5-point scale, coded 0 = never, 1 = hardly ever, 2 = occasionally, 3 = fairly often, and 4 = very often.

3.7.3 Clinical examination (Petersen et al., 2013)

- The third part was a clinical examination based on the modified CPI index and recorded using the WHO Oral Health Assessment Form, 2013. In order to evaluate periodontal condition, this examination looked for gingival bleeding and periodontal pockets on all teeth present in the oral cavity, whereas its predecessor instruments assessed calculus component as well, which was but index teeth based. A metallic CPI periodontal probe with a 0.5-mm ball tip was used, which has a black band between 3.5 and 5.5 mm and rings at 8.5 and 11.5 mm from the ball tip (Figure 3.2) (Petersen et al., 2013).

3.7.3.1 Community Periodontal Index (modified), 2013

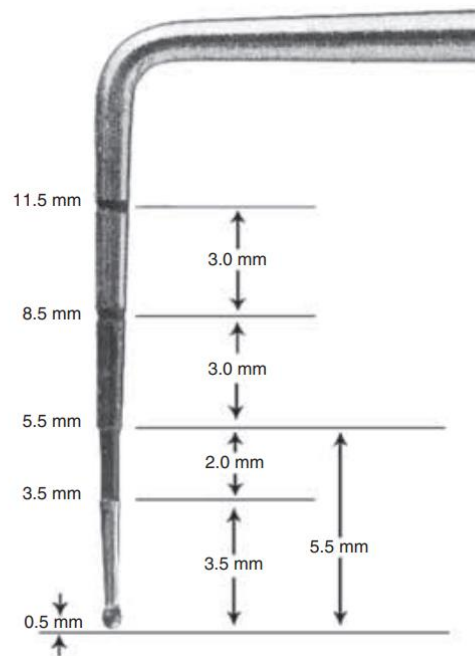


Figure 3.2: Community Periodontal Index (CPI) probe

Source: (Petersen et al., 2013)

Assessing for gingival bleeding and measuring periodontal pockets:

The gingival sulcus, or the area between the gingiva and the tooth, was the site where the CPI probe's tip was carefully placed. After that, the probe was moved around the sulcus of each tooth on both the buccal and lingual surfaces to see whether any bleeding had occurred. The WHO oral health evaluation form was then used to document the existence or non-existence of bleeding. Likewise, the probe's colour coding was used to gauge the depth of the sulcus or pocket, and scores were recorded in the manner (figure 3.3).

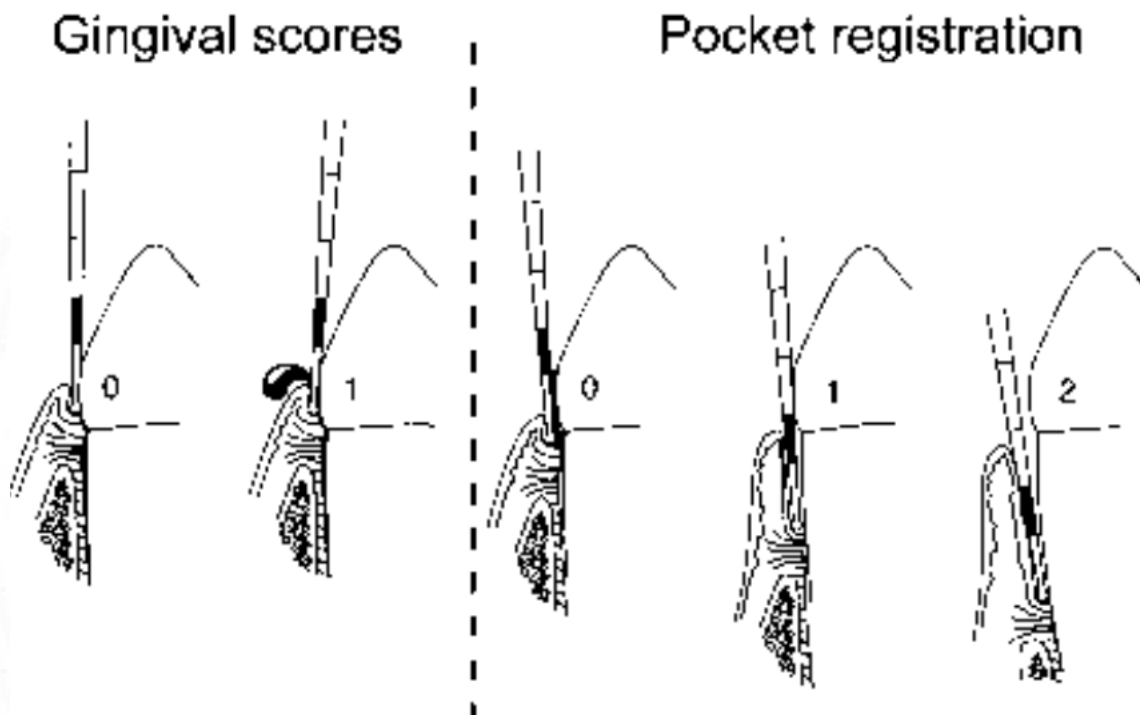


Figure 3.3: Coding for gingival bleeding and pocket using WHO CPI probe

Source: (Petersen et al., 2013)

Gingival bleeding scores

0 = Absence of condition

1 = Presence of condition

9 = Tooth excluded

X = Tooth not present

Pocket scores

0 = Absence of condition

1 = Pocket 4–5 mm

2 = Pocket 6 mm or more

9 = Tooth excluded

X = Tooth not present.

Loss of attachment (LOA):

The CPI evaluated the LOA from specific index teeth, which were determined by dividing the mouth into sextants based on tooth numbers. These sextants were tooth numbers spanning from 18–14, 13–23, 24–28, 38–34, 33–43, and 44–48. Within each sextant, the index teeth identified were 17/16, 11, 26/27, 47/46, 31, 36/37 respectively. LOA serves as an indicator of the lifetime accumulated periodontal destruction. The assessment of LOA was performed after evaluating gingival bleeding and pocket status. By placing the probe into the sulcus and scoring the location of the cemento-enamel junction (CEJ) in relation to the probe marks, LOA was determined (figure 3.4). All teeth were inspected and the poorest score was documented if either of the paired index teeth or the index teeth in any of the sextants were missing.

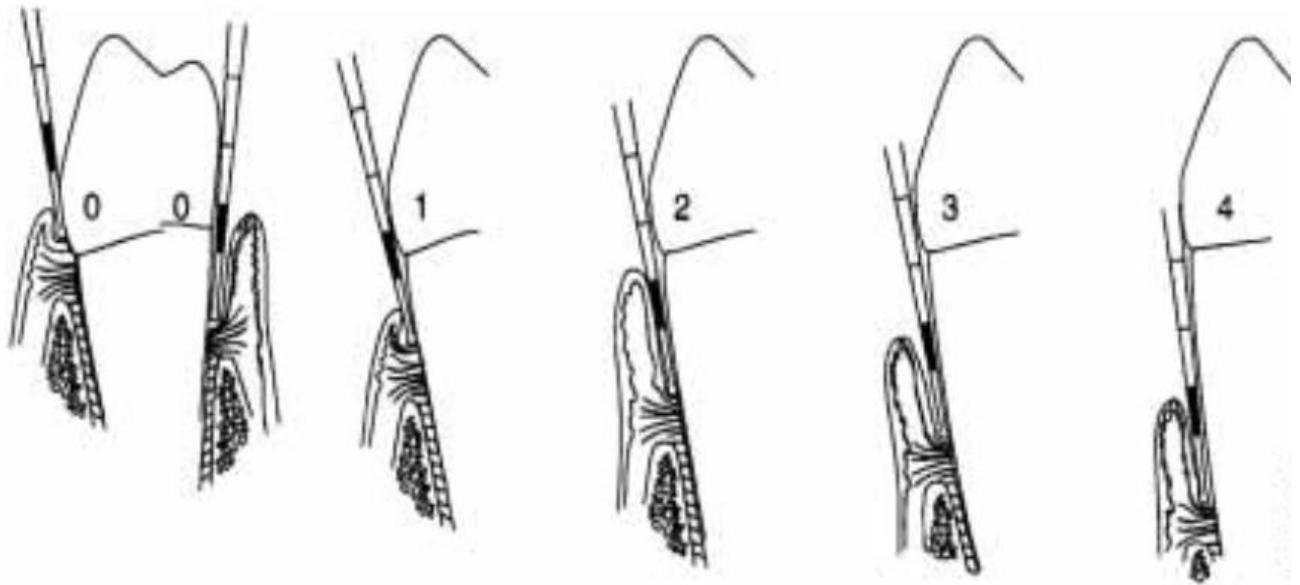


Figure 3.4: Coding for loss of attachment using WHO CPI probe

Source:(Petersen et al., 2013)

Codes used to denote the degree of attachment loss are as shown in table 3.2.

Table 3.2: Coding for loss of attachment

Codes	Description
0	0–3 mm
1	4–5 mm (CEJ within the black band)
2	6–8 mm (CEJ between the upper limit of the black band and 8.5 mm ring)
3	9–11 mm (CEJ between 8.5 mm and 11.5 mm ring)
4	12 mm or more (CEJ beyond 11.5 mm ring)
X	Excluded sextant
9	Not recorded

3.8 Operational case definitions

- Periodontitis (Tonetti et al., 2018):

A patient would be diagnosed with a periodontitis case according to the definition formulated in the World Workshop of Clinical Periodontology 2017, which is as follows.

1. Interdental Clinical Attachment Loss (CAL) is detectable at ≥ 2 non-adjacent teeth, or
2. Buccal or oral Clinical Attachment Loss (CAL) ≥ 3 mm with pocketing > 3 mm is detectable at ≥ 2 teeth

- Gingivitis

Bleeding is noticed from the gingiva of at least one tooth upon probing.

- Periodontal disease

Comprised of both periodontitis and gingivitis cases.

- Missed opportunity for care

Any participant with periodontal disease who visited primary care settings, which are devoid of dental services, forfeited the chance to be diagnosed and managed, which was regarded as a missed opportunity.

3.9 Variables used in the study

3.9.1 Dependent variable

Periodontal disease status, Oral Health-Related Quality of Life (for the third objective)

3.9.2 Independent variables

3.9.2.1 Socio-demographic details

Age, sex, socio-economic status, place of residence, years of education, occupation

3.9.2.2 Medical history

Illness, hypertension, diabetes, dyslipidemia, respiratory disease, heart disease, malignancy, kidney disease, arthritis, osteoporosis, and other illnesses.

3.9.2.3 Oral health status

Self-rated state of teeth and gums, presence of removable dentures and type of denture

3.9.2.4 Oral hygiene practice

Frequency of brushing teeth, materials used for cleaning teeth, brushing technique, materials used to remove food trapped between teeth.

3.9.2.5 Deleterious habits

Current and past tobacco smoking, current and past use of smokeless tobacco, ever consumed alcohol.

3.9.2.6 Oral health-seeking behaviour

Advice on maintaining oral health, dental problems in the past year, solution sought for the issues reported, last visit to the dentist, the purpose of visit, preferred type of facility for treatment, reasons for not utilizing public dental facilities, the barrier to seeking oral health care.

3.9.2.7 Periodontitis status

Presence or absence of periodontitis (for the third objective)

3.10 Data entry and analysis

Interview responses were documented using the Open Data Kit (ODK) mobile application. Clinical examination details were recorded on paper using the WHO oral health assessment form for adults. Subsequently, the information from the paper forms was transferred to the ODK platform and consolidated. Before analysis, data cleaning was conducted, removing all patient identifiable information. The cleaned data was then imported into SPSS version 25 software. Data were coded and recoded as necessary. Descriptive statistics were generated for all variables included in the study. Specifically, descriptive statistics were utilized to ascertain which domains of the Oral Health Impact Profile-14 were most affected among periodontitis patients. The relationship between periodontitis and OHRQoL was explored through bivariate analysis. Chi-square tests explored associations between various risk factors and periodontal disease status. Multiple logistic regression was conducted to elucidate factors associated with periodontal disease, adjusting for several variables simultaneously. All variables that underwent the chi-square test were included in logistic regression, except for illness. The multiple logistic regression model was obtained through forward conditional regression. The variables considered in the forward conditional regression were age group, socio-economic status, education, occupation, hypertension, diabetes, dyslipidaemia, respiratory disease, heart disease, other- illness, self-rated state of teeth, self-rated state of gums, smoking, smokeless tobacco, ever used alcohol, removable partial denture, frequency of brushing, food impaction, advice on oral health, a professional visit to a dentist, barriers for seeking professional oral health care.

3.10.1 Categorisation of variables for data analysis

❖ Age group

Age was categorised into four groups, 30–39-year-old, 40–49-year-old, 50–59-year-old and 60–64-year-old.

❖ Occupation

Occupation was classified into four categories. "Unemployed" encompassed individuals who could work but were not currently employed, along with those who were physically unable to work and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) workers. "Organized sector" included government and non-government employees and retired government servants. Participants engaged in self-employment fell under the "Unorganized sector" category. "Homemakers" constituted the women involved in the management of their households.

❖ Socioeconomic status

Below Poverty Line (BPL) - Participants with yellow or pink ration cards.

Above Poverty Line (APL) - Participants with blue or white ration cards.

❖ Education

The range of years of education was 0 to 20, which was categorised into four groups, ranging from 0 – 4 years of education, 5 – 8 years of education, 9 – 12 years of education and 13 – 20 years of education.

❖ Self-rated state of teeth and gums

It was categorised into three, 'above average' constituted ratings excellent, very good, and good ratings; 'average' included the average rating, while 'below average' comprised poor, very poor, and don't know ratings.

❖ OHIP-14

Standardising OHIP scores:

The response obtained was converted to standardised scores. The author of the OHIP-14 tool recommends utilizing standardized scores as the preferred method for analysing responses, which involves applying weight scores to each question (annexure IX). The coded responses to each question were multiplied by weights, and the products were then added to get the subscale score of each domain. Therefore, each subject had seven subscale scores, standardised to a common mean and standard deviation. These scores were then summed to derive the standardised score for each subject (Slade, 1997a).

❖ OHRQoL

The standardised scores were then categorised into three groups: a score of -1.76 represented good OHRQoL, scores of -0.95 to 0.11 represented the moderate quality of life, and scores of 0.58 to 77.15 represented poor OHRQoL.

3.10.2 Variables regrouped for bivariate analysis

❖ Dichotomous variables created were as follows:

Illness - Individuals who have reported any illness and those who have not.

Hypertension - Individuals who reported hypertension and those who have not.

Diabetes - Individuals who reported diabetes and those who have not.

Dyslipidemia - Individuals who reported dyslipidaemia and those who have not.

Respiratory disease - Individuals who reported COPD/asthma and those who have not.

Heart disease - Individuals who reported any heart disease and those who have not.

Other illness - Individuals who reported any illness other than mentioned above and those who have not.

Smoking tobacco - Current and past smokers were combined as 'yes' and those who have not ever smoked as the other category as 'no'.

Smokeless tobacco - Current and past chewers were combined under 'yes' and those who have not ever chewed as the other category 'no'.

Frequency of brushing - Individuals who brushed their teeth twice or more than twice under 'twice or more daily' and those who brushed once as the other category 'once daily'.

Food impaction - Individuals who reported food impaction and those who have not.

Professional visit to a dentist - Individuals who reported visiting dentist and those who have not.

Barriers to seeking professional oral health care - Individuals who reported barriers and those who have not.

3.10.3 Missed opportunity for care

The calculation was as follows:

Prevalence of periodontal disease in the study population:

= Number of participants diagnosed with periodontal disease/Total number of study participants

= 248/420 = 59 percent

Participants with periodontal disease who sought professional dental care the last year:

= Number of participants with periodontal disease who sought care from dentist/ Number of participants diagnosed with periodontal disease

= $42/248 = 17$ percent

Participants with periodontal disease who sought care at FHC:

Number of participants with periodontal disease who sought care from FHC/ Number of participants diagnosed with periodontal disease

= $8/248 = 3.2$ percent

Participants with periodontal disease who got any type of care:

Number of participants with periodontal disease who sought care from dentist or FHC/

Number of participants diagnosed with periodontal disease

= $42+8/248 = 20.16$ percent

Therefore, missed opportunity for care:

100– percentage of participants with periodontal disease who got any type of care

= $100 - 20.16 = 79.84$ percent

3.11 Study period

January 2024 – March 2024

3.12 Ethical considerations

The research obtained ethical clearance from the Institutional Ethics Committee of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum

(SCT/IEC/2166/DECEMBER-2023) as well as permission from the District Medical Officer of Ernakulam district. Prior informed consent was obtained from each participant before the interview and clinical examination. Participant could withdraw from the interview and clinical assessment phases at any time if they wished to. Measures were taken to minimize discomfort during the process. Clinical instruments were autoclaved daily, individually packaged in sterile disposable pouches, and opened only at the time of examination. Once used, instruments were never reused on the same day for another participant but cleaned and autoclaved for the following day's use. During the clinical assessment, the investigator wore gloves and a mask as precautionary measures. The principal investigator took responsibility for safeguarding the confidentiality of the data collected. All information gathered was strictly utilized for research purposes, and any identifiable data was only accessible to the primary investigator.

CHAPTER – 4

RESULTS

Out of 464 participants approached, 420 complete samples were obtained after excluding individuals due to non-response, incomplete data or because they met exclusion criteria. Nearly two-thirds (63.6 percent) of the participants were females. More than half of the study participants visited FHC for treatment related to non-communicable diseases, 40.5 percent for communicable diseases and 7 percent for treatment related to injuries.

4.1 Socio-demographic characteristics of the participants

Table 4.1 shows socio-demographic characteristics of the participants stratified by sex. The age range of the patients was 30 years to 64 years with a mean age of 52.31 and standard deviation of 9.3 years. Age was categorized into four groups, with 36.7 percent of participants falling within the 50-59 age range, while the smallest proportion (12.9 percent) was observed in the 30-39 age group. Forty percent of the participants had an educational background spanning 9 to 12 years. Homemakers constituted 41.2 percent of the occupation demographic. Over half of the participants (53.1 percent) were classified as Below Poverty Line (BPL), possessing yellow and pink ration cards, while 46.9 percent held blue and white ration cards, indicating Above Poverty Line (APL) status. More than 90 percent of the participants resided in houses located within the panchayat.

Table 4.1: Sociodemographic characteristics of the participants

Variables	Male (N=153)	Female (N=267)	Total (N=420)
Age in years, mean (SD)	52.71(9.4)	52.08(9.3)	52.31(9.3)
Age groups, n (%)			
30-39	19(12.4)	35(13.1)	54(12.9)
40-49	30(19.6)	58(21.7)	88(21.0)
50-59	56(36.6)	98(36.7)	154(36.6)
60-64	48(31.4)	76(28.5)	124(29.5)
Education, n (%)			
0-4	19(12.4)	44(16.5)	63(15.0)
5-8	57(37.3)	70(26.2)	127(30.2)
9-12	54(35.3)	114(42.7)	168(40.0)
13-20	23(15.0)	39(14.6)	62(14.8)
Occupation, n (%)			
Unemployed	18(11.8)	31(11.6)	49(11.7)
Organised sector	47(30.7)	43(16.1)	90(21.4)
Unorganised sector	88(57.5)	20(7.5)	108(25.7)
Homemaker	0(0.0)	173(64.8)	173(41.2)
Socio-economic status, n (%)			
BPL	87(56.9)	136(50.9)	223(53.1)
APL	66(43.1)	131(49.1)	197(46.9)
Residence, n (%)			
Panchayat	141(92.2)	255(95.5)	396(94.3)
Municipality	10(6.5)	12(4.5)	22(5.2)
Corporation	2(1.3)	0(0.0)	2(0.5)

*SD – Standard Deviation, APL – Above Poverty Line, BPL – Below Poverty Line

4.2 Behavioral and clinical characteristics of the participants

Table 4.2 shows behavioral and clinical characteristics of the participants stratified by sex. Almost 38 percent of the participants had not reported any illness. The maximum proportion of participants were hypertensives (34.5 percent) followed by people with diabetes constituting 32.2 percent. Currently, tobacco smoking was reported by 6.4 percent of the participants, all of whom were male and smoked daily. Among the 393 participants who did not currently smoke, 6.6 percent had a history of smoking. Smokeless tobacco use was reported by 6.4 percent of the participants, with 89 percent of them being daily users. Only 2 percent of those who did not use smokeless tobacco reported a history of its use. Among those who had ever consumed alcohol, 5.2 percent reported consumption within the past 12 months.

Table 4.2: Behavioral and clinical characteristics of the participants

Variables	Male (N=153)	Female (N=267)	Total (N=420)
Medical condition, n (%)			
No illness	61(39.9)	98(36.7)	159(37.9)
Hypertension	54(35.3)	91(34.1)	145(34.5)
Diabetes	47(30.7)	88(33.0)	135(32.2)
Dyslipidemia	17(11.1)	56(21.0)	73(17.4)
Respiratory disease	12(7.8)	10(3.7)	22(5.2)
Heart disease	5(3.3)	13(4.9)	18(4.3)
Malignancy	1(0.7)	3(1.1)	4(1.0)
Kidney disease	3(2.0)	0	3(0.7)
Arthritis	0	2(0.7)	2(0.5)
Osteoporosis	0	1(0.4)	1(0.2)
Others*	3(2.0)	34(12.7)	37(8.8)

Variables	Male (N=153)	Female (N=267)	Total (N=420)
Deleterious habits, n (%)			
Current smoker	27(17.6)	0	27(6.4)
Past smoker (N=393)	26(20.6) (N=127)	0	26(6.6)
Current chewer	14(9.2)	13(4.9)	27(6.4)
Past chewer (N=393)	5(3.6) (N=139)	3(1.2) (N=254)	8(2)
Ever consumed alcohol	37(24.2)	0	37(8.8)

* Fatty liver, Goitre, Stroke, Hyperthyroidism, Hypocalcaemia, Liver cirrhosis, Stroke, Thyroid dysfunction, Tuberculosis, Vertigo

4.3 Opinions about the state of teeth and gums

When queried about their opinion regarding the state of their teeth and gums, approximately 71 percent expressed an average rating for their teeth. In comparison, 77.6 percent expressed an average rating for their gums. It was observed that gums were relatively perceived to be healthier than teeth (figure 4.1).

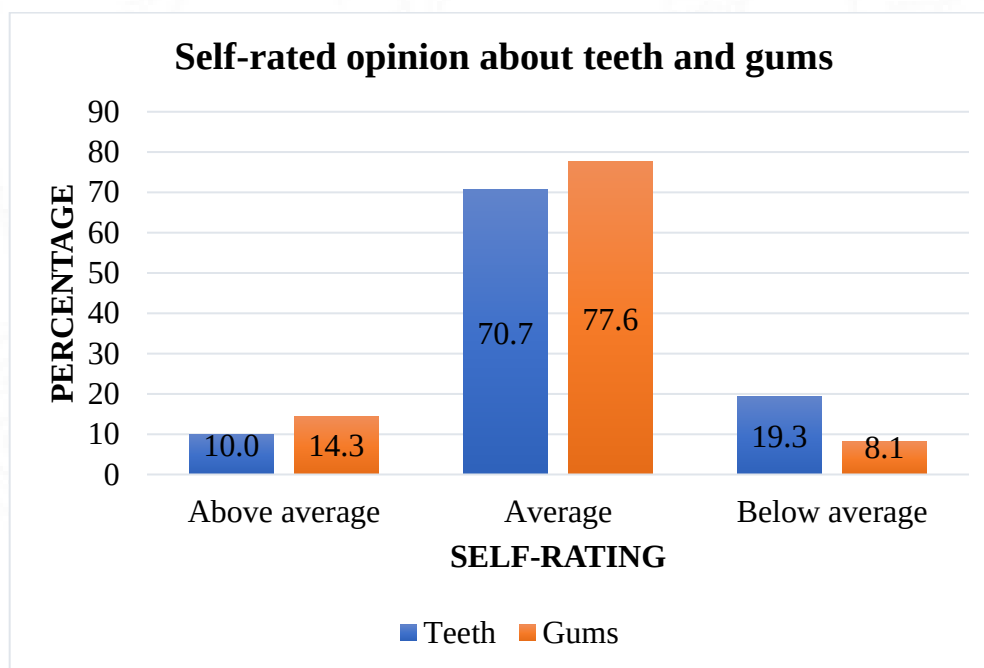


Figure 4.1: Self-rated opinion about the state of teeth and gums

4.4 Oral hygiene practices

Table 4.3 shows the oral hygiene practices of participants. Nearly two-thirds of the participants brush their teeth twice daily. The majority (97.6 percent) of participants utilized a combination of toothbrushes and toothpaste for oral hygiene. A small proportion employed alternative cleaning materials, with toothpowder, charcoal, and salt used by 13.6 percent, 7.6 percent, and 2.1 percent, respectively. Only two females reported using mouthwash. Additionally, 1.7 percent of participants reported brushing with their fingers. The majority (97.4 percent) of participants adopting the horizontal technique of tooth brushing with the vertical method utilized by 31.2 percent. Merely 1 percent of participants reported using dental floss, a professionally endorsed method for removing impacted food, while the remainder employed various unhealthy methods.

Table 4.3: Oral hygiene practices of the participants

Variables	Male (N=153)	Female (N=267)	Total (N=420)
Frequency of brushing teeth, n (%)			
Twice daily	79(51.6)	191(71.5)	270(64.3)
Once daily	74(48.4)	73(27.3)	147(35.0)
More than twice daily	0	3(1.1)	3(0.7)
Materials used for cleaning teeth, n (%)			
Toothbrush	152(99.3)	266(99.6)	418(99.5)
Toothpaste	148(96.7)	263(98.5)	411(97.9)
Toothpowder	21(13.7)	36(13.5)	57(13.6)
Charcoal	10(6.5)	22(8.2)	32(7.6)

Variables	Male (N=153)	Female (N=267)	Total (N=420)
Salt	3(2.0)	6(2.2)	9(2.1)
Finger	1(0.7)	6(2.2)	7(1.7)
Mouthwash	0	2(0.7)	2(0.5)
Leaves	1(0.7)	0	1(0.2)
Brushing technique, n (%)			
Horizontal	148(96.7)	261(97.8)	409(97.4)
Vertical	44(28.8)	87(32.6)	131(31.2)
Circular	3(2.0)	12(4.5)	15(3.6)
Horizontal + vertical	36(23.6)	70(26.2)	106(25.2)
Materials used to remove impacted food particles, n (%)			
No food impaction	29(19.0)	57(21.3)	86(20.5)
Midribs of leaf	80(52.3)	97(36.3)	177(42.1)
Brush	21(13.7)	68(25.5)	89(21.2)
Rinse with water	8(5.2)	24(9.0)	32(7.6)
Safety-pin	3(2.0)	23(8.6)	26(6.2)
Toothpick	12(7.8)	13(4.9)	25(6.0)
Thread	3(2.0)	13(4.9)	16(3.8)
Leave it as it is	5(3.3)	2(0.7)	7(1.7)
Tongue	1(0.7)	5(1.9)	6(1.4)
Fingernail	2(1.3)	2(0.7)	4(1.0)
Floss	3(2.0)	1(0.4)	4(1.0)

4.5 Oral health-seeking behavior

In the previous year, 13 participants visited the FHC seeking consultation for oral health concerns. Among them, three quarters were provided with medication by the FHC physician, while 21.4 percent were referred to a dentist. Only 6.7 percent of participants received guidance on maintaining oral health during the past year. Among them, approximately 40 percent received advice from dentists, while 42.9 percent received advice from medical camps (table 4.4).

Table 4.4: Oral health-seeking behavior of the participants

Variables	Male (N=153)	Female (N=267)	Total (N=420)
Sought consultation for dental problems at FHC in the past year, n (%)	4(2.6)	9(3.4)	13(3.1)
Received advice on maintaining oral health in the past year, n (%)	11(7.2)	17(6.4)	28(6.7)
Advice was received from, n (%) (N=28)			
Dentist	5(45.5)	6(35.3)	11(39.3)
Friends related to the health field	2(18.2)	1(5.9)	3(10.7)
Health workers	0	2(11.8)	2(7.1)
Others*	5(45.5)	8(47.1)	13(46.4)
Presence of oral health problem in the past year, n (%)			
No problem	74(48.4)	134(50.2)	208(49.5)
Tooth sensitivity	23(15.0)	39(14.6)	62(14.8)
Toothache	17(11.1)	39(14.6)	56(13.3)
Loose teeth	25(16.3)	21(7.9)	46(11.0)
Gum related problems	9(5.9)	29(10.9)	38(9.0)
Tooth decay	14(9.2)	22(8.2)	36(8.6)
Others#	1(0.7)	5(1.9)	6(1.4)

* Medical camps, social media

Aphthous ulcer, bad breath, mouth ulcer, halitosis, TMJ pain

FHC – Family Health Centre

Table 4.4 shows the dental health problems experienced by the participants in the past year. Roughly half of the participants (49.5 percent) indicated that they did not experience any oral health issues in the previous year, while 14.8 percent reported tooth sensitivity and 13.3 percent suffered from toothache. Nine percent of the participants faced gum-related problems. The methods adopted by those 212 participants to address their oral health issues are depicted in the figure 4.2. Nearly half of them (45.8 percent) did not employ any methods, while 42 percent sought consultation from a dentist for their problems. When stratified by sex, a higher percentage of males (57 percent) did not employ any methods, whereas a relatively greater proportion of females (48.9 percent) consulted a dentist.

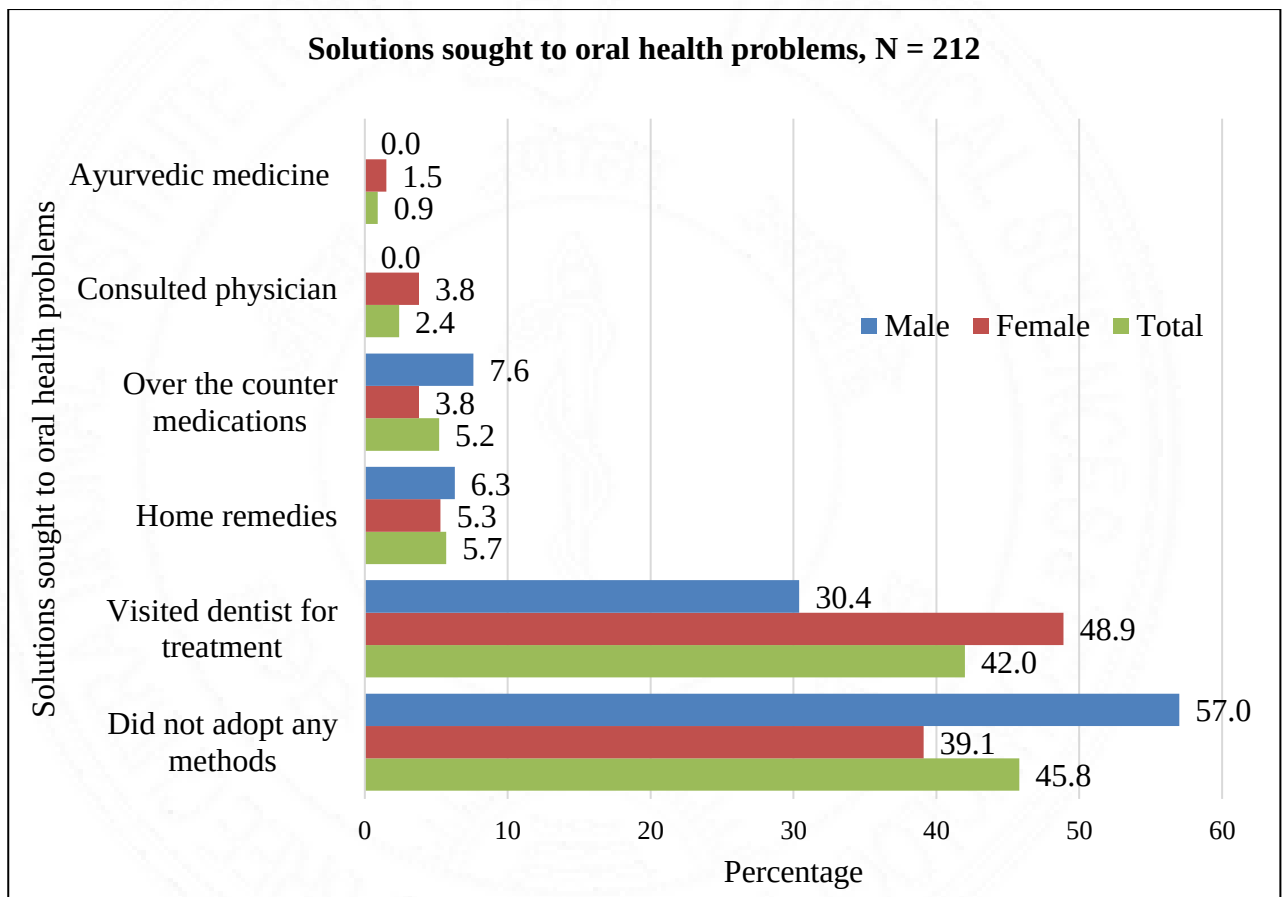


Figure 4.2: Solutions sought for oral health problems

4.6 Professional dental visits

Approximately 21 percent of respondents stated that they had never visited a dentist. Nearly 23 percent reported visiting a dentist once every five years or more, while 22.6 percent reported visiting between two to five years. Among those who did not seek dental care, male respondents comprised 28.8 percent, whereas female respondents accounted for 16.5 percent as shown in figure 4.3.

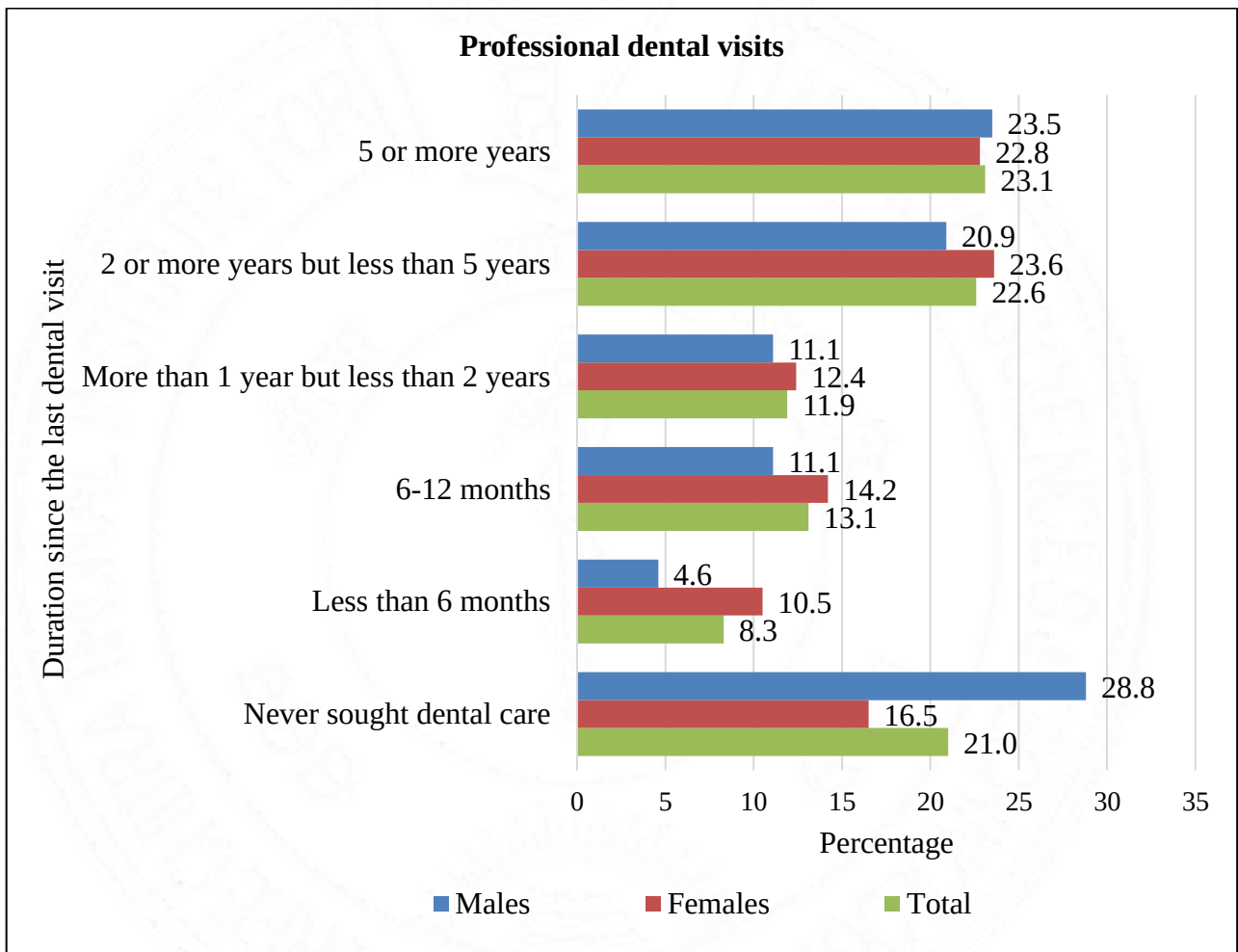


Figure 4.3: Duration since last dental visit

4.7 Reason for a dental visit

Of those who reported visiting the dentist, over two-thirds cited experiencing pain or difficulty with their teeth as the primary reason. In contrast, 29 percent visited for treatment follow-up, and 3.9 percent sought consultation or advice. A higher proportion of females reported visiting for treatment or follow-up, whereas a greater number of males sought dental care due to pain-related issues (figure 4.4).

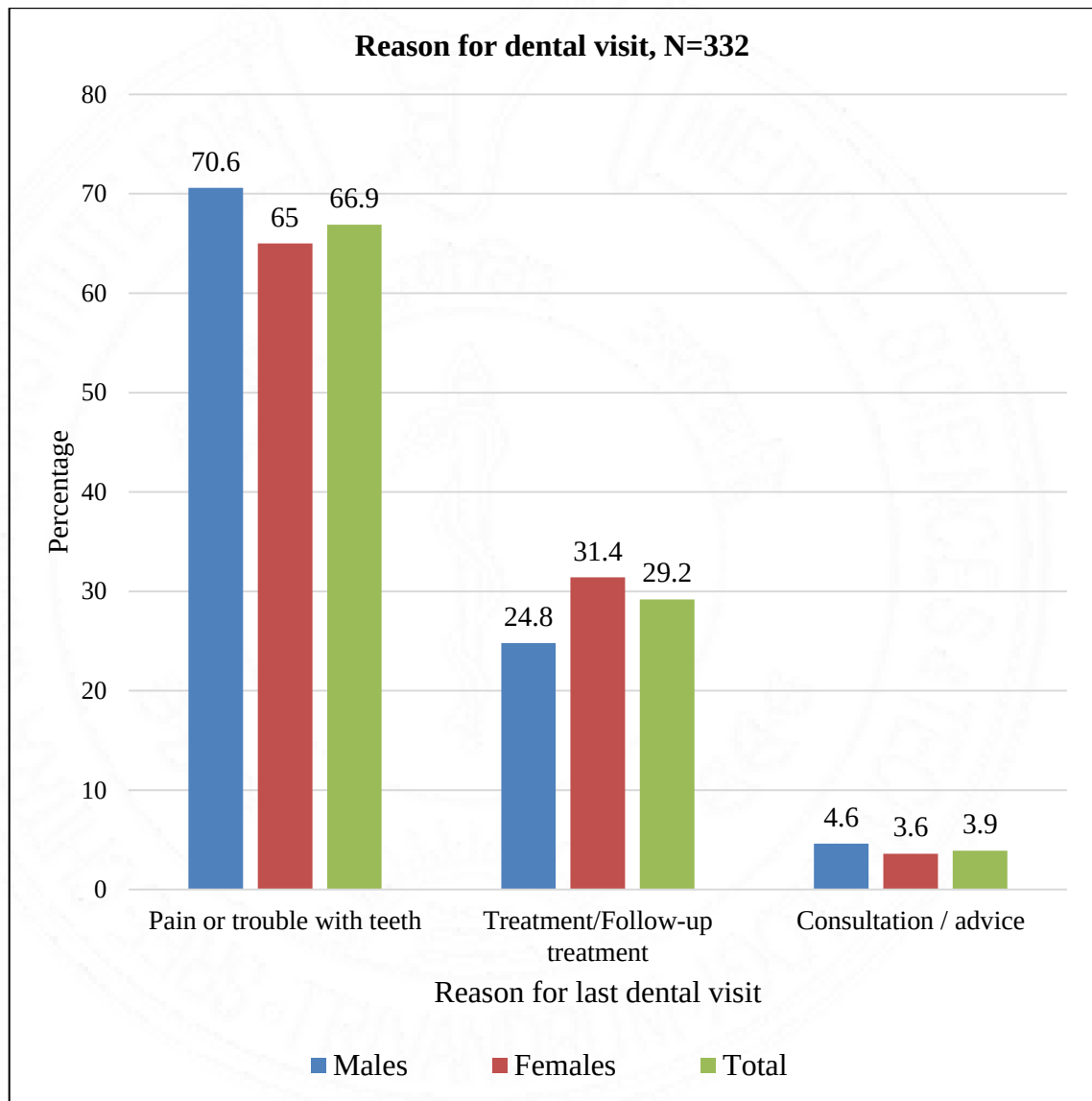


Figure 4.4: Reason for last dental visit

4.8 Type of dental facility used most for dental care

Of those who sought dental care, the majority (67 percent) opted for private dental clinics, while only 16.6 percent relied on government hospitals and 13 percent on private dental colleges. Female participants tended to utilize private dental clinics more frequently, while male participants preferred government hospitals when seeking dental care (figure 4.5).

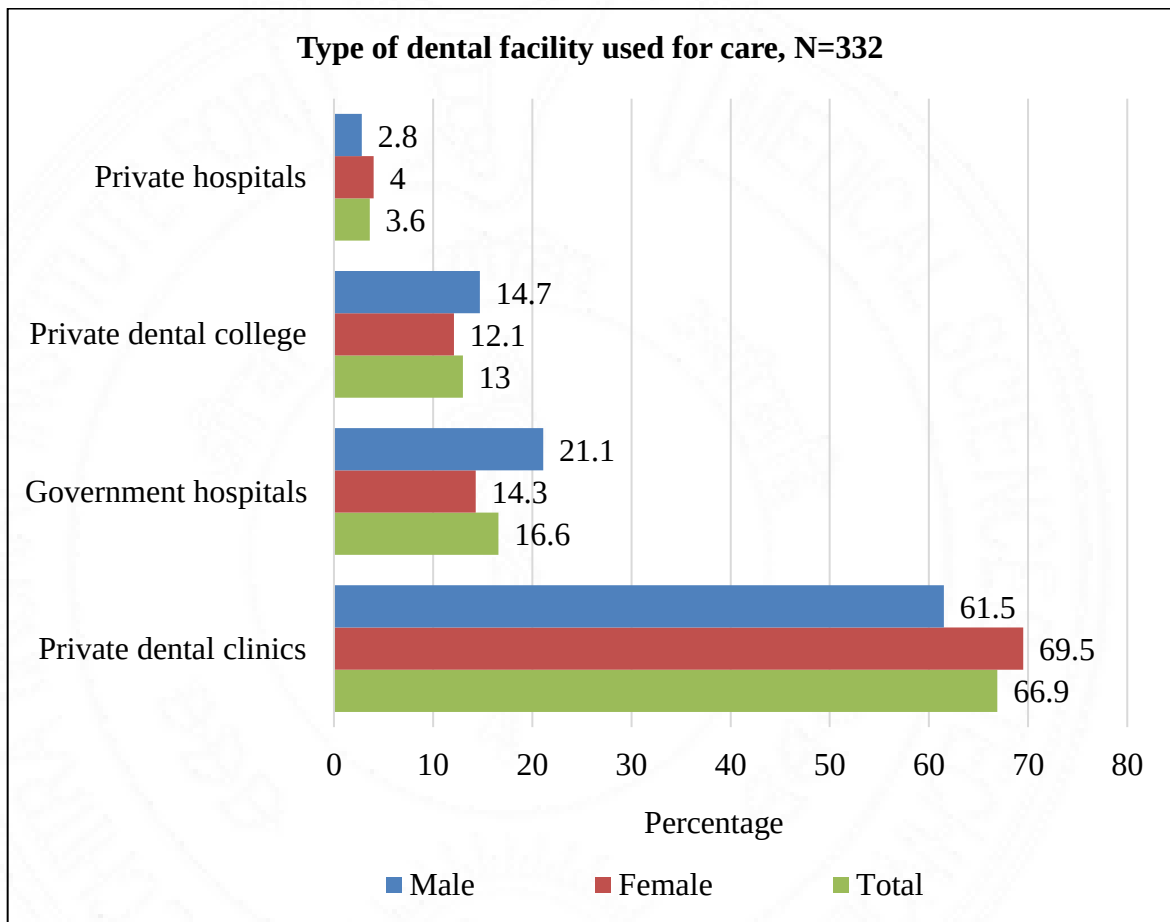


Figure 4.5: Type of dental facility used the most for seeking care

4.9 Reasons for not utilizing government dental facility for seeking care

A 25.6 percent reported having used government dental facilities, as shown in table. While 23.5 percent stated they were unaware of government dental facilities, 24 percent noted that private facilities were comparatively more accessible. Long waiting times and inadequate dental services were identified as the other major reasons, at 19 percent and 9.3 percent, respectively (table 4.5).

Table 4.5: Reasons for not utilizing public dental facilities for dental care

Variables	Male (N=109)	Female (N=223)	Total (N=332)
Availed government facilities	27(24.8)	58(26.0)	85(25.6)
Better accessibility to private facilities	26(23.9)	54(24.2)	80(24.1)
No knowledge about government dental services	30(27.5)	48(21.5)	78(23.5)
Long waiting time	20(18.3)	43(19.3)	63(19)
Inadequate dental services	9(8.3)	22(9.9)	31(9.3)
No government dental facility nearby	4(3.7)	17(7.6)	21(6.3)
Lack of staff	6(5.5)	14(6.3)	20(6)
Poor quality of dental services	1(0.9)	4(1.8)	5(1.5)
Behaviour of staff	1(0.9)	2(0.9)	3(0.9)

4.10 Barriers to seeking professional oral health care

Among the participants, 64.7 percent reported no barriers to seeking professional oral health care, comprising 70.6 percent of males and 61.4 percent of females. For 18.3 percent, the expense incurred was cited as the reason, while general health conditions were a barrier for 9.5 percent of participants.

Lack of time and additional requirements, such as permission from consulting doctors for certain specific medical conditions prior to dental procedures, were cited by 4.8 percent. Except for the perception of the importance of oral health, and the availability of over-the-counter medication, all barriers were reported more frequently by females (table 4.6).

Table 4.6: Barriers to seeking professional oral health care

Variables	Male (N=153)	Female (N=267)	Total (N=420)
No barriers	108(70.6)	164(61.4)	272(64.7)
Expense incurred*	16(10.3)	61(22.9)	77(18.3)
General health condition	12(7.8)	28(10.5)	40(9.5)
Lack of time	13(8.5)	27(10.1)	40(9.5)
Require medical clearance before dental treatment	4(2.6)	16(6.0)	20(4.8)
Less importance is given to oral health	9(5.9)	10(3.7)	19(4.5)
Availability of OTC medication	6(3.9)	7(2.6)	13(3.1)
Distant dental facility	3(2.0)	9(3.4)	12(2.9)
Age	0	6(2.2)	6(1.4)
Fear of dental procedure	0	3(1.1)	3(0.7)
*Cost of dental treatment + socioeconomic status of the participant OTC – Over the counter medication			

4.11 Prevalence of periodontal conditions

The periodontal status of participants was assessed using the WHO's 2013 modified CPI index. Periodontal disease reported in my study comprised both gingivitis and periodontitis. In this study, gingival bleeding or a periodontal pocket in any tooth constitutes a diagnosis of periodontal disease. The participant is diagnosed with gingivitis if there are no periodontal pockets but gingival bleeding in any

tooth. Cases of periodontitis adhere to the case definition outlined in the World Workshop of Clinical Periodontology in 2017.

Among the participants, 248 were diagnosed with periodontal disease, representing 59 percent (95% CI: 54.3 – 63.8), 149 participants were diagnosed with periodontitis, constituting 35.5 percent (95% CI: 30.7 – 40.5), 175 patients exhibited gingival bleeding, indicating a prevalence of 41.7 percent (95% CI: 37.1 – 46.7). The prevalence of periodontal disease was higher among males, constituting a 65.4 percent of cases, while gingivitis was more prevalent among females, with 44.2 percent (figure 4.6).

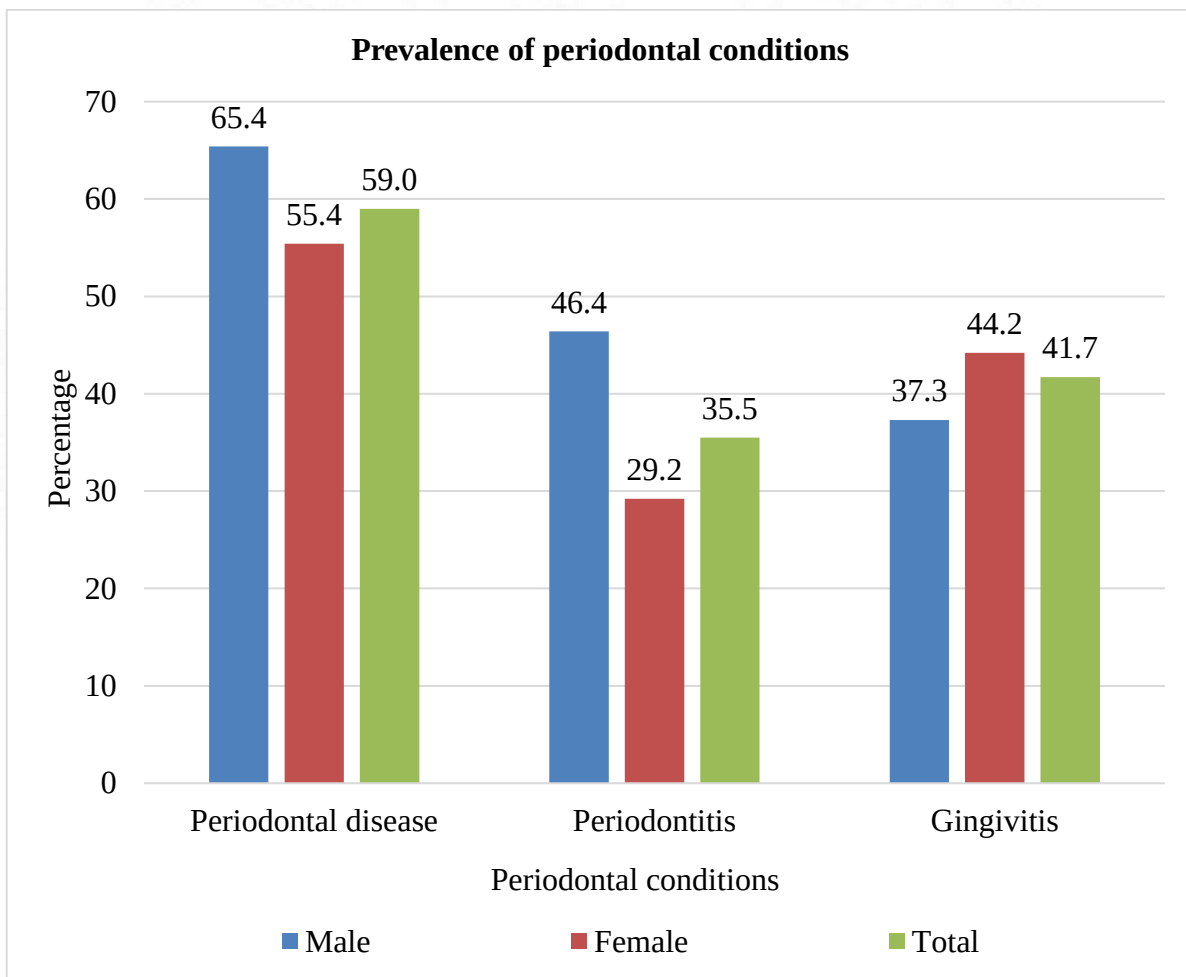
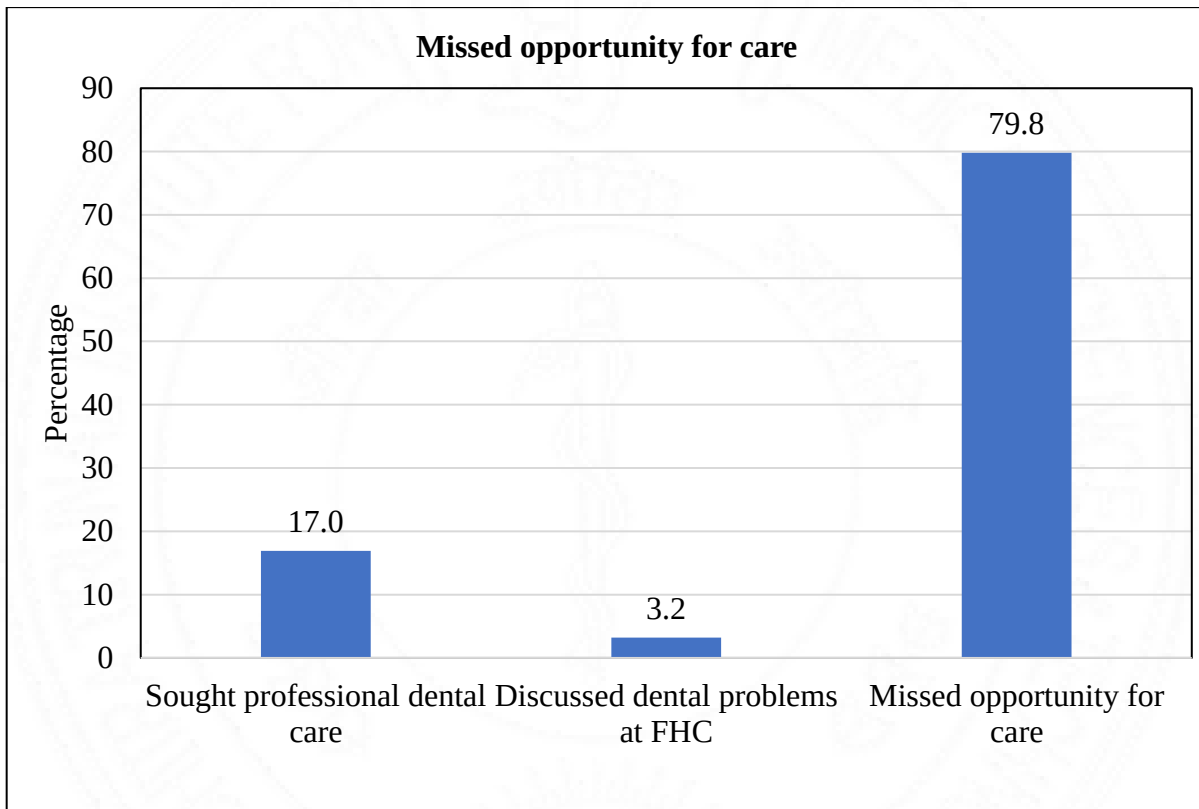


Figure 4.6: Prevalence of periodontal conditions

4.12 Missed opportunity for care

The missed opportunity to detect and treat periodontal disease in primary care settings was assessed in this study, as depicted in the figure 4.7. Among the individuals with periodontal disease, 17 percent had consulted a dentist in the previous year for their oral health concerns, and 3.2 percent had seen the doctor at an FHC. Thus, only 20.16 percent got any care, resulting in a calculated missed opportunity rate of 79.8 percent (95% CI: 74.9 - 84.7).



*FHC – Family Health Centre

Figure 4.7: Missed opportunity for care

4.13 Oral Health-Related Quality of Life

The table 4.7 displays responses to each question of the OHIP-14 tool. The majority of participants reported no impact (never) as their response. However, responses other than “never” were more prevalent in the domains of physical pain, psychological discomfort, and physical disability.

Table 4.7: Frequency and responses to OHIP-14

Domains	Items	Never n (%)	Hardly ever n (%)	Occasionally n (%)	Fairly often n (%)	Very often n (%)
Functional limitation	Trouble pronouncing	412(98.1)	6(1.4)	1(0.2)	1(0.2)	0
	Sense of taste has worsened	414(98.6)	5(1.2)	0	1(0.2)	0
Physical pain	Painful aching	312(74.3)	101(24)	6(1.4)	1(0.2)	0
	Uncomfortable to eat	306(72.9)	106(25.2)	7(1.7)	1(0.2)	0
Psychological discomfort	Self-conscious	388(92.4)	28(6.7)	2(0.5)	2(0.5)	0
	Felt tense	401(95.5)	12(2.9)	6(1.4)	1(0.2)	0
Physical disability	Diet has been unsatisfactory	400(95.2)	18(4.3)	0	2(0.5)	0
	Interrupt meals	390(92.9)	25(6.0)	3(0.7)	2(0.5)	0
Psychological disability	Difficult to relax	411(97.9)	6(1.4)	1(0.2)	2(0.5)	0
	Bit embarrassed	413(98.3)	5(1.2)	2(0.5)	0	0
Social disability	Bit irritable	408(97.1)	10(2.4)	2(0.5)	0	0
	Difficulty doing your usual jobs	410(97.6)	7(1.7)	2(0.5)	1(0.2)	0
Handicap	Life in general, was less satisfying	414(98.6)	3(0.7)	2(0.5)	1(0.2)	0
	Totally unable to function	411(97.9)	6(1.4)	2(0.5)	1(0.2)	0

4.13.1 Mean standardised scores of Oral Health Impact Profile

The mean standardised scores of OHIP-14 for patients with and without periodontitis are displayed in the figure 4.8, along with table 4.8 showing the mean score difference. Patients with periodontitis experienced more significant impacts in the domains of physical pain, physical disability and functional limitation. The difference in total mean standardized scores between the two groups was 1.63 (1.05 – (-0.58)). This indicates a substantial disparity in scores between periodontally healthy and unhealthy participants.

Table 4.8: Mean standardised scores of OHIP-14 among participants

Domains	Periodontitis	No Periodontitis	Mean score difference
Functional limitation	0.14	-0.08	0.22
Physical pain	0.38	-0.21	0.59
Psychological discomfort	0.10	-0.05	0.15
Physical disability	0.15	-0.08	0.23
Psychological disability	0.11	-0.06	0.17
Social disability	0.08	-0.05	0.13
Handicap	0.09	-0.05	0.14
Total	1.05	-0.58	1.63

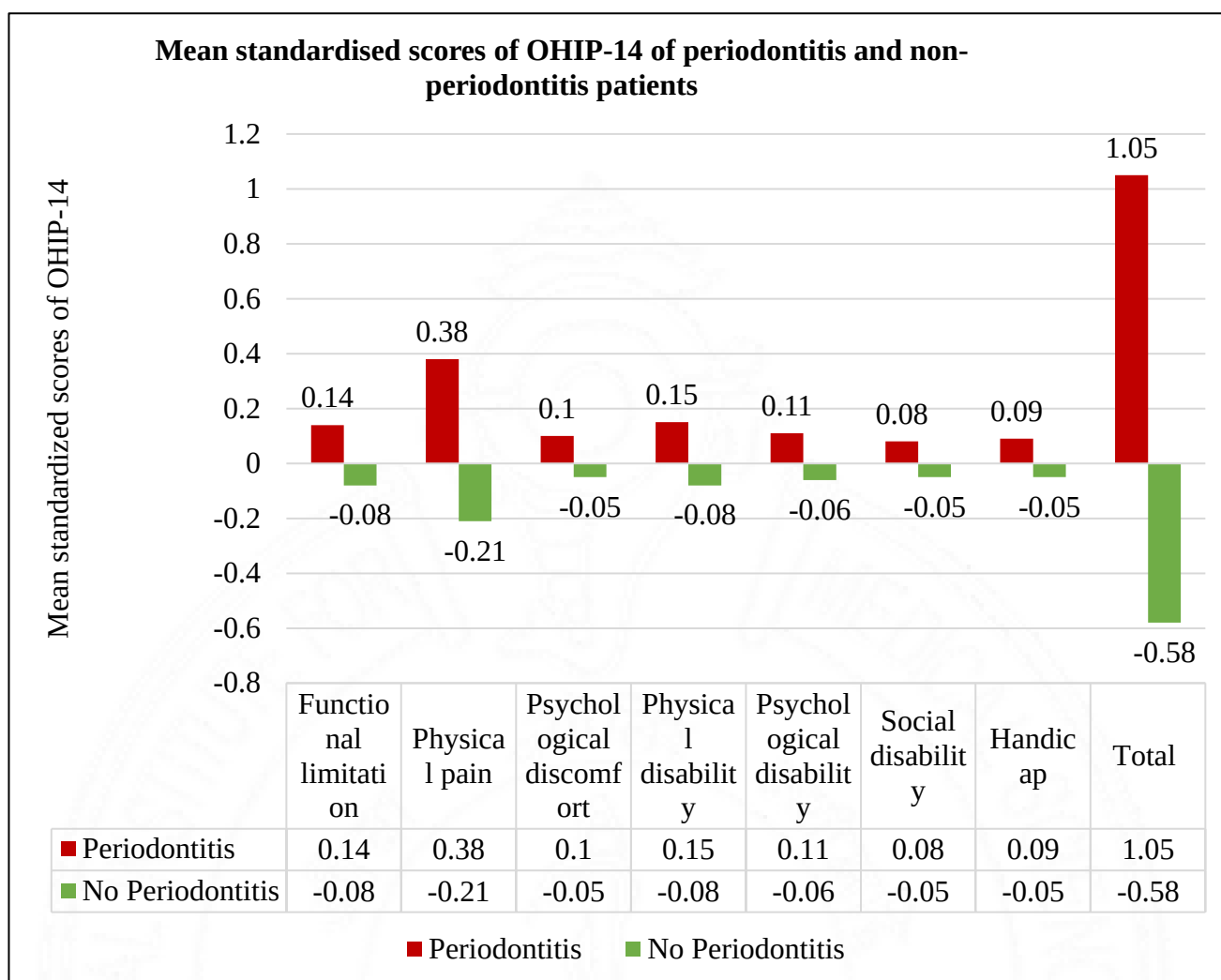


Figure 4.8: Mean standardised OHIP scores of periodontitis and non-periodontitis participants

4.13.2 Association between periodontitis and Oral Health Related Quality of Life

The standardized scores of the 420 participants ranged from -1.76 to 77.15. A score of -1.76 corresponds to a zero response in the OHIP-14 tool, indicating "never" in all domains. In this assessment, 240 participants reported zero, resulting in a total OHIP score of zero for them, which, gave the figure of -1.76 when standardised. A cross-tabulation was conducted between periodontitis as the independent variable and the OHRQoL variable containing three categories as the dependent

variable, with the results demonstrated in figure 4.9. The data indicates that 67.2 percent of periodontally healthy individuals had a good OHRQoL, whereas only 38.9 percent of periodontitis patients reported having good OHRQoL.

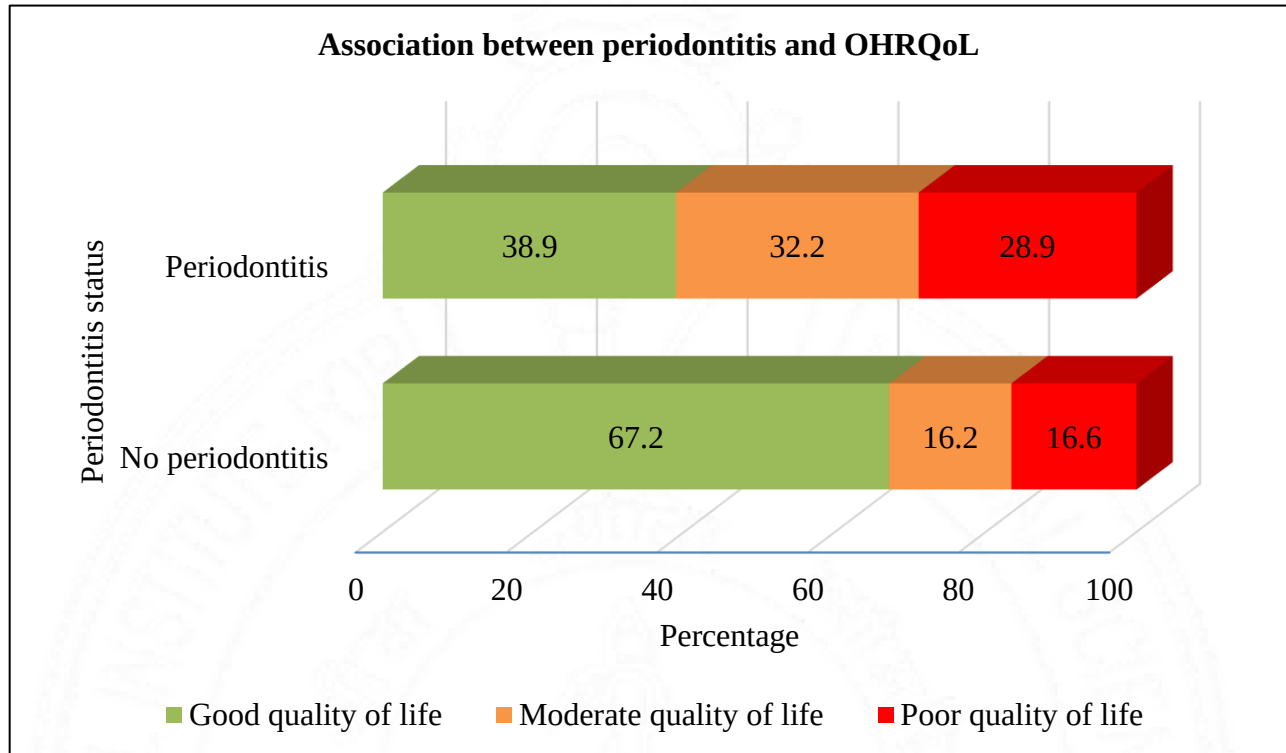


Figure 4.9: Association between periodontitis and OHRQoL

4.14 Association of socio-demographic factors with periodontal disease

Table 4.9 illustrates the association of socio-demographic characteristics of participants with periodontal disease. It was observed that males exhibited a relatively higher prevalence (65.4 percent) of periodontal disease compared to females. As the age increased, the prevalence of periodontal disease also climbed, with the highest proportion of cases observed in the 60-64 age category (77.4 percent). Approximately 80 percent of participants belonging to lower socio-economic strata were affected by the disease, while the prevalence was 36 percent among those in the APL category. There was an inverse relationship between educational status and periodontal

disease, as the participants with 0 to 4 years of school education had a prevalence of 87.3 percent. In comparison, those with more than 13 years of education had a prevalence of nearly 26 percent. The unemployed had the highest disease prevalence, with 81.6 percent.

Table 4.9: Association of socio-demographic factors with periodontal disease

Variables	Periodontal disease (N=248)	No periodontal disease (N=172)	Chi-square p-value
Sex			
Male	100(65.4)	53(34.6)	0.046
Female	148(55.4)	119(44.6)	
Age			
30-39	12(12.2)	42(77.8)	< 0.001
40-49	34(38.6)	54(61.4)	
50-59	106(68.8)	48(31.2)	
60-64	96(77.4)	28(22.6)	
Socio-economic status			
BPL	177(79.4)	46(20.6)	< 0.001
APL	71(36.0)	126(64.0)	
Education			
0-4	55(87.3)	8(12.7)	< 0.001
5-8	90(70.9)	37(29.1)	
9-12	87(51.8)	81(48.2)	
13-20	16(25.8)	46(74.2)	
Occupation			
Unemployed	40(81.6)	9(18.4)	< 0.001
Organised sector	29(32.2)	61(67.8)	
Unorganised sector	77(71.3)	31(28.7)	
Homemaker	102(59.0)	71(41.0)	

*APL – Above Poverty Line, BPL – Below Poverty Line

4.15 Association of behavioral and clinical factors with periodontal disease

Table 4.10 depicts the association between self-reported medical conditions and deleterious habits with periodontal disease. Participants who reported any illness had a higher prevalence of disease than those who reported no illness. Periodontal disease prevalence was relatively higher in individuals with hypertension with respect to those without hypertension. A similar trend was observed with diabetes, dyslipidemia, respiratory disease and heart disease; however, the correlation was not statistically significant for heart disease. Smokers, tobacco chewers, and alcohol users had a higher prevalence of periodontal disease than non-users.

Table 4.10: Association of behavioral and clinical factors with periodontal disease

Variables	Periodontal disease (N=248)	No periodontal disease (N=172)	Chi-square p-value
Illness			
Yes	182(69.7)	79(30.3)	< 0.001
No	66(41.5)	93(58.5)	
Hypertension			
Yes	102(70.3)	43(29.7)	0.001
No	146(53.1)	129(46.9)	
Diabetes			
Yes	90(66.7)	45(33.3)	0.029
No	158(55.4)	127(44.6)	
Dyslipidemia			
Yes	51(69.9)	22(30.1)	0.039
No	197(56.8)	150(43.2)	
Respiratory disease			
Yes	20(90.9)	2(9.1)	0.002
No	228(57.3)	170(42.7)	
Heart disease			
Yes	12(66.7)	6(33.3)	0.502
No	236(58.7)	166(41.3)	
Others			
Yes	28(63.6)	16(36.4)	0.513
No	220(58.5)	156(41.5)	

Variables	Periodontal disease (N=248)	No periodontal disease(N=172)	Chi-square p-value
Smoking			
Yes	51(96.2)	2(3.8)	< 0.001
No	197(53.7)	170(46.3)	
Smokeless			
Yes	32(91.4)	3(8.6)	< 0.001
No	216(56.1)	169(43.9)	
Ever used alcohol			
Yes	34(91.9)	3(8.1)	< 0.001
No	214(55.9)	169(44.1)	

4.16 Association of periodontal disease with self-rated opinion on oral health

Table 4.11 illustrates association between self-perceived opinions on the state of teeth and gums with periodontal disease. Participants who rated their teeth and gums below average had a higher prevalence of the disease than those who rated them above average. While those who used a removable partial denture manifested a slightly higher proportion of cases than non-denture wearers, the relationship was not statistically significant.

Table 4.11: Association of periodontal disease with self-perception of oral health status and presence of removable dentures

Variables	Periodontal disease (N=248)	No periodontal disease (N=172)	Chi-square p-value
Self-rated state of teeth			
Above average	12(28.6)	30(71.4)	< 0.001
Average	167(56.2)	130(43.8)	
Below average	69(85.2)	12(14.8)	
Self-rated state of gums			
Above average	17(28.3)	43(71.7)	< 0.001
Average	203(62.3)	123(37.7)	
Below average	28(82.4)	6(17.6)	
Removable partial denture			
Yes	13(61.9)	8(38.1)	0.785
No	235(58.9)	164(41.1)	

4.17 Association of periodontal disease with oral hygiene practice

Periodontal disease prevalence was relatively lower in individuals who brushed their teeth twice or more daily than in those who only did so once a day, as shown in table 4.12. Compared to people without food impaction, those who reported having it had a higher disease prevalence.

Table 4.12: Association between oral hygiene practices and periodontal disease

Variables	Periodontal disease (N=248)	No periodontal disease (N=172)	Chi-square p-value
Frequency of brushing			
Once daily	136(92.5)	11(7.5)	< 0.001
Twice or more daily	112(41.0)	161(59.0)	
Food impaction			
Yes	219(65.6)	115(34.4)	< 0.001
No	29(33.7)	57(66.3)	

4.18 Association of periodontal disease with oral health-seeking behaviour

Individuals who had ever visited a dentist showed a relatively lower prevalence of disease compared to those who had never done so, although it was not statistically significant. Compared to participants who had not reported any barriers to seeking professional oral health care, those who had reported showed a comparatively greater disease prevalence (table 4.13).

Table 4.13: Association between oral health-seeking behaviour and periodontal disease

Variables	Periodontal disease (N=248)	No periodontal disease (N=172)	Chi-square p-value
Advice on oral health			
Yes	14(50.0)	14(50.0)	0.314
No	234(59.7)	158(40.3)	

Variables	Periodontal disease (N=248)	No periodontal disease (N=172)	Chi-square p-value
Professional visit to a dentist			
Never visited	58(65.9)	30(34.1)	0.141
Ever visited	190(57.2)	142(42.8)	
Barriers to seeking professional oral health care			
Yes	104(70.3)	44(29.7)	0.001
No	144(52.9)	128(47.1)	

4.19 Factors associated with periodontal disease - results of binary logistic regression

Table 4.14 shows the results of binary logistic regression. After adjusting for confounding and other interactions, significant associations with the outcome variable were observed for age group, socio-economic status, smoking, frequency of brushing and self-rated opinion of teeth. There was a direct relationship between age and periodontal disease, with participants in the age group of 60-64 having 6.7 times the odds of periodontal disease (AOR:6.7, 95%CI:2.6-17.2) compared to the reference age category of 30-39. Individuals from higher socio-economic strata have 0.3 times the odds of periodontal disease (AOR:0.3, 95%CI:0.2-0.5) compared to those in lower strata. Compared to people who brush their teeth once a day, individuals who brush twice or more a day have lower odds of periodontal disease (AOR:0.11, 95%CI: 0.1-0.2). Those who perceived their oral health to be below average have higher odds of periodontal disease (AOR:4.3, 95%CI:1.4-13.1) than those who rated it better.

Table 4.14: Factors associated with periodontal disease - results of binary logistic regression

Variables	Periodontal disease, n (%)	Crude odds ratio (95% CI)	P-value	Adjusted odds ratio (95% CI)	P-value
Sex					
Male	100(65.4)	Reference	Reference	NA	NA
Female	148(55.4)	0.7 (0.4-0.9)	0.047	NA	NA
Age group					
30-39	12(12.2)	Reference	Reference	Reference	Reference
40-49	34(38.6)	2.2 (1.1 - 4.8)	0.045	2.7 (1.1-6.9)	0.041
50-59	106(68.8)	7.7 (3.7 - 16)	< 0.001	5.7 (2.3-13.9)	< 0.001
60-64	96(77.4)	12 (5.6 - 25.9)	< 0.001	6.7 (2.6-17.2)	< 0.001
Socio-economic status					
BPL	177(79.4)	Reference	Reference	Reference	Reference
APL	71(36.0)	0.2 (0.1 - 0.2)	< 0.001	0.3 (0.2 – 0.5)	< 0.001
Education					
0-4	55(87.3)	Reference	Reference	NA	NA
5-8	90(70.9)	0.4 (0.2 - 0.8)	0.015	NA	NA
9-12	87(51.8)	0.2 (0.1- 0.4)	< 0.001	NA	NA
13-20	16(25.8)	0.1 (0.02 - 0.1)	< 0.001	NA	NA
Occupation					
Unemployed	40(81.6)	Reference	Reference	NA	NA
Organised sector	29(32.2)	0.1 (0.05 - 0.3)	< 0.001	NA	NA
Unorganised sector	77(71.3)	0.6 (0.2 - 1.3)	0.172	NA	NA
Homemaker	102(59.0)	0.3 (0.2 - 0.7)	0.005	NA	NA
Illness					
No	66(41.5)	Reference	Reference	NA	NA

Variables	Periodontal disease, n (%)	Crude odds ratio (95% CI)	P-value	Adjusted odds ratio (95% CI)	P-value
Yes	182(69.7)	3.25 (2.2 - 4.9)	< 0.001	NA	NA
Hypertension					
No	146(53.1)	Reference	Reference	NA	NA
Yes	102(70.3)	2.096 (1.4 - 3.2)	< 0.001	NA	NA
Diabetes					
No	158(55.4)	Reference	Reference	NA	NA
Yes	90(66.7)	1.608 (1.1 - 2.5)	0.029	NA	NA
Dyslipidemia					
No	197(56.8)	Reference	Reference	NA	NA
Yes	51(69.9)	1.765 (1.03 - 3.0)	0.040	NA	NA
Respiratory disease					
No	228(57.3)	Reference	Reference	NA	NA
Yes	20(90.9)	7.456 (1.7 - 32.3)	0.007	NA	NA
Heart disease					
No	236(58.7)	Reference	Reference	NA	NA
Yes	12(66.7)	1.407 (0.5 - 3.8)	0.503	NA	NA
Others					
No	220(58.5)	Reference	Reference	NA	NA
Yes	28(63.6)	1.241 (0.6 - 2.4)	0.514	NA	NA
Self-rated state of teeth					
Above average	12(28.6)	Reference	Reference	Reference	Reference
Average	167(56.2)	3.212 (1.6 - 6.5)	0.001	2.6 (1.03-6.3)	0.043
Below average	69(85.2)	14.375 (5.8 - 35.6)	< 0.001	4.3 (1.4-13.1)	0.011
Self-rated state of gums					
Above average	17(28.3)	Reference	Reference	NA	NA

Variables	Periodontal disease, n (%)	Crude odds ratio (95% CI)	P-value	Adjusted odds ratio (95% CI)	P-value
Average	203(62.3)	4.2 (2.3-7.6)	< 0.001	NA	NA
Below average	28(82.4)	11.8 (4.2 - 33.6)	< 0.001	NA	NA
Smoking					
No	197(53.7)	Reference	Reference	Reference	Reference
Yes	51(96.2)	22.1 (5.3 - 91.7)	< 0.001	7.1 (1.5-33.2)	0.014
Smokeless					
No	216(56.1)	Reference	Reference	NA	NA
Yes	32(91.4)	8.4 (2.5 - 27.7)	0.001	NA	NA
Ever used alcohol					
No	214(55.9)	Reference	Reference	NA	NA
Yes	34(91.9)	9.0 (2.7 - 29.7)	< 0.001	NA	NA
Removable partial denture					
No	235(58.9)	Reference	Reference	NA	NA
Yes	13(61.9)	1.1 (0.5 -2.8)	0.785	NA	NA
Frequency of brushing					
Once daily	136(92.5)	Reference	Reference	Reference	Reference
Twice or more daily	112(41.0)	0.05 (0.03- 0.1)	< 0.001	0.11 (0.05-0.2)	< 0.001
Food impaction					
No	29(33.7)	Reference	Reference	NA	NA
Yes	219(65.6)	3.7 (2.3 - 6.2)	< 0.001	NA	NA
Advice on oral health					
No	234(59.7)	Reference	Reference	NA	NA
Yes	14(50.0)	0.7 (0.3 - 1.5)	0.316	NA	NA
Professional visit to a dentist					
Never visited	58(65.9)	Reference	Reference	NA	NA
Ever visited	190(57.2)	0.7 (0.4 - 1.1)	0.142	NA	NA

Variables	Periodontal disease, n (%)	Crude odds ratio (95% CI)	P-value	Adjusted odds ratio (95% CI)	P-value
Barriers to seeking professional oral health care					
No	144(52.9)	Reference	Reference	NA	NA
Yes	104(70.3)	2.1 (1.4 3.2)	0.001	NA	NA
*CI – Confidence Interval NA – Not Applicable (Not a variable in the final logistic regression model) APL – Above Poverty Line, BPL – Below Poverty Line					

CHAPTER - 5

DISCUSSION AND CONCLUSION

The current research aimed to estimate the prevalence of periodontal disease among adults aged 30 - 64 seeking primary care at FHCs of Ernakulam district, identify determinants associated with the disease, and explore the relationship between periodontitis and OHRQoL. The prevalence of periodontal disease was 59 percent in the study population, gingival bleeding was present in 41.7 percent and periodontitis was diagnosed in 35.5 percent. Multivariate logistic regression identified age, socio-economic status, smoking, frequency of brushing, and self-reported opinion of teeth as factors associated with periodontal disease. The study also could establish that the OHRQoL among the periodontitis patients was compromised compared to periodontally healthy participants.

5.1 Prevalence of periodontal disease

The prevalence of periodontal disease in this study differs from that reported in other studies, which can be attributed to variations in diagnostic criteria (Nazir et al., 2020), clinical assessment methods, definitions of periodontal disease, and the population included across different studies. For instance, studies among tribal populations in Kerala reported a prevalence of 87.5 percent (Gopalankutty et al., 2020) and 76.9 percent (Valsan et al., 2016), while a dental hospital-based study conducted in Varanasi reported a prevalence of 96.3 percent (Bansal et al., 2015). Globally, the prevalence of periodontal disease is estimated to be around 20 percent to 50 percent (Nazir et al., 2020), affecting approximately 538 million people (Kassebaum et al., 2017). A national-level survey conducted in 2002-2003 reported prevalences of 89.6 percent and 79.9 percent in the age groups 35-44 and 65-74 years respectively (Shewale et al., 2016). A community-based study conducted in Trivandrum among rural adults aged 30 – 50 (R, 2000) and another study conducted in Haryana (Handa et al., 2016) among 810 people reported a prevalence of 65 percent.

5.2 Determinants of periodontal disease

The direct relationship between age and the prevalence of periodontal disease and the inverse relationship with education level is consistent with existing literature. In a study conducted in Andhra Pradesh, where the prevalence was 73.62 percent among individuals aged 13 or older, there was a notable loss of attachment and a decline in periodontal health with increasing age (Rao et al., 2016). Similarly, in a hospital-based study by Bansal et al., early stages of periodontal disease were more prevalent in younger age groups, while advanced stages were more in older individuals. Interestingly, no participants in the study had a healthy periodontium after the age of 44 years (Bansal et al., 2015). Age-related deterioration of periodontal health has also been documented in other studies (R, 2000; Sanadhya et al., 2015). Edentulousness tends to peak after the age of 75, but the severity of periodontal disease begins to increase around two decades earlier (Kassebaum et al., 2017). Shallow and deep pockets are more commonly found in older adults (Nazir et al., 2020). A study in Haryana reported that only 6 percent of individuals aged 35-44 had a healthy periodontium, and none in the 65-74 age group did (Handa et al., 2016). It is not just the factor of immunity (Hajishengallis, 2015) that predisposes older individuals to periodontal issues, but also the cumulative effect of unaddressed periodontal disease over time since adulthood (Genco, 1996).

The trend of decreasing periodontal disease with increased education level also corresponds with existing literature. This study showed a steady decline in disease prevalence as education level increased. In a study involving Whites and African Americans, individuals with less than a high school diploma had twice the odds of severe periodontitis compared to those with higher education levels (Borrell et al., 2006).

The inverse relationship between socioeconomic status and periodontal disease observed in this study is consistent with findings from other research. In a study done by Borell et al. across four communities in the United States, a higher prevalence of periodontitis was reported among individuals from lower socioeconomic neighborhoods, with an odds ratio of 1.5 compared to those from higher-income areas (Borrell et al., 2006). Nearly three-quarters of participants from the lowest socioeconomic strata were afflicted by periodontal disease as indicated in a study among rural adults in Kerala (R, 2000). A hospital-based study by Sanadhya et al. similarly found a higher prevalence of the disease among individuals in the low-income category compared to the high-income category (Sanadhya et al., 2015). In a study conducted in Brazil, the prevalence of periodontal disease was higher among males, older adults, individuals with lower incomes, and those with less education (Vettore et al., 2013).

The association between periodontal disease and cardiometabolic conditions observed in this study aligns with findings from other research studies. The present study found associations with hypertension, diabetes mellitus, dyslipidemia, respiratory diseases, and heart diseases, although the association with heart disease was not statistically significant. Individuals who reported any illness had a higher prevalence of periodontal disease compared to those who reported being free of any disease. However, since this was a cross-sectional study, it cannot determine whether there is a cause-and-effect relationship or just a correlation exists. Prospective studies are needed to understand the bi-directional relationship and underlying mechanisms linking them. In a study done by Rajhans et al. among 1500 diabetes patients, 86.8 percent of patients had a diagnosis of periodontal disease (Rajhans et al., 2011). Another study using NHANES data of 14,000 patients in the United States found that participants over 45 years old with severe periodontitis had a 2.31-fold increased risk of metabolic syndrome compared to those without the condition, after controlling for confounders (D'Aiuto et al., 2008). A study based on Korean NHANES data demonstrated a close association

between severe periodontitis and COPD in males aged 40 years and older, even after controlling for confounding factors (Chung et al., 2016). In Iran, a study involving 8682 participants aged 35-70 found that the odds of clinical attachment loss increased by 14 percent in subjects with high levels of bad cholesterol (Ayoobi et al., 2023). A cross-sectional data analysis from the National Oral Health Survey of China revealed that among hypertensive individuals, severe periodontitis was 41.4 percent, compared to 28.0 percent in normotensives (Zhan et al., 2023).

The higher prevalence of periodontal disease in males compared to females, along with females demonstrating relatively superior oral hygiene practices and a greater inclination towards seeking oral health care, is consistent with existing research. In the present study, females exhibited a lower prevalence of disease (55.4 percent) compared to males (65.4 percent), which aligns with findings from other studies. Gingivitis was more common among females (44.2 percent), while periodontitis was more common among males (46.4 percent). These findings mirror the results of a study by Jayakrishnan et al., which reported a 70 percent prevalence among males and 59 percent among women (R, 2000). Similarly, a study in Varanasi by Bansal et al. observed that males had more periodontal pockets. In contrast, females had relatively healthier teeth and experienced more bleeding on probing compared to males (Bansal et al., 2015). Batra et al. reported a prevalence of 93.8 among males and 89.5 percent among females aged 20-49 in Uttar Pradesh (Batra et al., 2014). The higher prevalence in males can be attributed to deleterious habits like smoking, to which they are likely to be more exposed, which serves as an etiology for decreased gingival bleeding. Better oral hygiene practices and oral-health-seeking behavior among females compared to males observed in this study further support the difference in prevalence. A study from Andhra Pradesh had but reported a higher prevalence among females (56.4 percent). Males had deep pockets, while females tended to have shallow pockets. Additionally, 31 percent of males had healthier gingiva as compared to 22 percent in females. Similarly, gingivitis was found to be more common in females than in males, which is

consistent with the present study findings (Rao et al., 2016). As the study of Rao et al. included participants from the age of 13 and above, hormonal changes in women could be a contributing factor. Since periodontal disease is multifactorial, it is challenging to pinpoint the exact etiology of these differences.

The high prevalence of periodontal disease among smokers, chewers, and alcohol consumers was high in this present study, which is consistent with findings from other studies. A study among tribes in Kerala found that tobacco users had 5.6 times odds of periodontal disease compared to non-users (Gopalankutty et al., 2020). Similarly, in a study by Jayakrishnan et al. the risk was 2.6 times higher in tobacco users compared to non-smokers (R, 2000). A study by Batra et al. among individuals aged 20-49 showed that not only smokers but also alcoholic subjects had a higher prevalence compared to non-users (Batra et al., 2014).

This present study also found that individuals who brushed their teeth more than twice daily had lower odds of periodontal disease than those who did not. This finding is consistent with other studies where poor oral hygiene behaviors were associated with 4.9 times higher odds of periodontal disease (Gopalankutty et al., 2020). Additionally, individuals who used brushing aids other than toothbrushes and toothpaste, such as fingers or charcoal, had a higher prevalence of periodontal disease. Similarly, those who brushed twice daily had a lower disease prevalence (50.9 percent) compared to those who brushed once (69.3 percent)(R, 2000). Despite high awareness of dental flossing (87 percent) in a hospital-based study population in Mangalore, only 7.4 percent practiced it. Those who brushed twice daily had comparatively better periodontal health (Kaur et al., 2019).

5.3 Oral health care utilisation

The findings regarding the pattern of dental consultation in this study align with similar research conducted in various regions. Roughly 21 percent of the participants in this study have never visited

a dentist before. In a study from the Kollam district of Kerala, 17 percent of people did not ever consulted a dentist (Salim and V, 2021). However, this percentage was notably higher in studies from other parts of Kerala, such as Rajasthan (55 percent) (Gupta et al., 2014). Similarly, a study based in Mangalore found that 52.2 percent had not consulted a dentist (Kaur et al., 2019). Consistent with the present study's findings, most participants who sought out a dentist cited pain as a primary reason. While this percentage was 67 in the present study, it was 90 percent in a study from Rajasthan (Gupta et al., 2014).

Among those who reported barriers to seeking professional oral health care in the present study, 52 percent cited expense incurred for dental treatment as the reason, followed by general health condition (27 percent), lack of time, and difficulty seeking permission from treating doctor for severe medical conditions before dental treatment. These findings were echoed in the study from Kollam, where health condition was cited as the chief barrier, followed by long waiting times, approval from treating doctors, neglect of oral health, and the absence of emergency associated with oral health conditions (Salim and V, 2021). Additionally, 12.8 percent of those who reported barriers in the present study cited less emphasis on oral health as a reason for not seeking dental care. Approximately 96 percent participants in a study from Rajasthan reported the cost associated with dental treatment as a reason (Gupta et al., 2014).

Regarding the preference for dental facilities, the present study found that private dental clinics were the most utilized (67 percent), followed by government hospitals and private dental colleges, corresponding with the findings of studies conducted in Kerala. The willingness of the majority of the participants to handle functional aspects with existing teeth, sheds light on their unconcern towards oral health (Salim and V, 2021). Studies have indicated that the utilization of dental services is common in Southern India (Talukdar et al., 2022) and among females (Pewa et al., 2015).

5.4 Oral health-related quality of life

The present study findings indicate that periodontitis patients experience a relatively poor quality of life compared to non-periodontitis patients, with the most impacted domains being physical pain, physical disability and functional limitation. While some literature supports these findings, there are also opposing views. A study conducted in the United Kingdom by Fuller et al. reported that periodontitis patients have a poorer quality of life than their healthy counterparts (Fuller et al., 2020). Similarly, a study among the Turkish population demonstrated higher OHIP-14 scores in periodontally compromised individuals, which was deemed clinically meaningful (Eltas et al., 2016). One of the research projects in Trivandrum reported a statistically significant association between OHRQoL and clinical attachment loss in 158 patients with periodontitis. Still, no statistically meaningful relationship was observed between the severity of periodontitis and OHRQoL. The most impacted domains recorded were physical pain, psychological discomfort and physical disability (Sivadas T and R Nayar, 2022). Another study in Iran among periodontitis patients reported the most impacts in physical pain and psychological disability, yet it found no significant association between chronic periodontitis and OHRQoL (SALARI and ALAVI, 2021). Similarly, a study among reserve police personnel in Karnataka showed an association between periodontal diseases with the domains of physical pain, physical disability, and psychological discomfort (Vn et al., 2023). Fotedar et al. established periodontal disease as a contributing factor to the impact on quality of life, with physical pain, physical disability, psychological discomfort and functional limitation as the most affected domains (Fotedar et al., 2014). Similarly, Ng and Leung reported impacts in all domains except social disability and handicap (Ng and Leung, 2006).

Contrary to these findings, Sanadhya et al. found no impact on OHIP-14 scores for periodontal disease in a study among 1200 patients of a dental college in Udaipur (Sanadhya et al., 2015). There

may be some variation in these assessments due to the fact that they are self-reported views of how oral health issues affect people's quality of life.

5.5 Strengths and limitations

One notable strength of this study is its sampling strategy and appropriate sample size. Simple random sampling to select FHCs from the district, followed by systematic random sampling to select participants from these FHCs, ensured a representative sample. With a precision of 5 percent, the study estimated prevalence in 420 samples. This research contributes not only to understanding the disease burden but also to assessing its effects on patient's quality of life. Additionally, the study sheds light on the missed opportunity for diagnosing and managing periodontal disease in primary care settings.

Another strength is the involvement of a single investigator throughout the study, including clinical examinations. This approach minimized the potential for inter-observer variability, enhancing the reliability of the study's findings.

However, being a cross-sectional study, it was limited in its ability to establish temporal relationships between periodontal disease and associated factors. The study only included individuals seeking care at FHCs, limiting the generalizability of the results to adults aged 30 – 64 seeking care at FHCs of Ernakulam district. The reliance on self-reported measures introduced the possibility of underreporting or overreporting, and recall bias may have influenced reporting past experiences.

5.6 Conclusion and Recommendations

This study revealed that more than half of the participants aged 30-64 seeking primary care at FHCs in Ernakulam district are affected by periodontal disease. Alarming, over three-quarters of them are missing out on opportunities for diagnosis and management within primary care settings. Moreover, the impact of advanced-stage of periodontal disease on quality of life is considerable. The low levels of care-seeking behavior for oral health issues suggest either a lack of awareness or neglect towards dental health.

Considering that periodontal disease prevalence is higher in older age groups and the population is aging, it is imperative to formulate measures targeting timely diagnosis and referral. Integrating preventive dental services into primary care settings is strongly recommended. Implementing comprehensive screening protocols for periodontal disease during routine primary care visits at FHCs is to be considered. Efforts should also be made to address gaps in recognising and managing periodontal conditions in primary health centers, mainly focusing on lower socio-economic strata with high disease prevalence.

With systematic surveillance of oral health conditions lacking, preventive measures are virtually non-existent. Many oral health conditions can be effectively prevented if diagnosed very early. However, when these conditions are not identified and addressed promptly, they often progress to more advanced stages necessitating curative and rehabilitative interventions. This delay in diagnosis and treatment not only exacerbates the individual's health issues but also imposes a significant economic burden on both patients and the healthcare system. Given the relatively high cost of treating the advanced stage of periodontal disease, patients often resort to tooth extraction or manage with their existing teeth.

The operational guidelines for comprehensive primary health care proposed various oral health interventions, including education about oral hygiene, recognition, and referral for problems like caries, gingivitis and tooth loss screening was proposed to be implemented at the community level. Screening for gingivitis and periodontitis with referral, oral health education about periodontal diseases, counselling for tobacco cessation, and referral to tobacco cessation centers were proposed at Health and Wellness Centre – Sub Health Centers level (National Health Systems Resource Centre, 2018). Implementing these guidelines, either through training existing staff at FHCs or by posting dentists, is highly recommended and could significantly improve oral health outcomes in the community.

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ANNEXURE -I

Achutha Menon Centre for Health Science Studies (AMCHSS)
Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST)
Thiruvananthapuram-11
Participant Information sheet

I am Dr Merrin Varghese, a Master of Public Health student at Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum. I am conducting a study on **“Prevalence of periodontal disease and oral health-related quality of life among adults seeking primary care at Family Health Centers in Ernakulam district, Kerala”** as part of my course work, under the guidance of Dr Jeemon P, Additional Professor of Epidemiology at AMCHSS.

You are being invited to participate in this research study. Before you decide whether or not to participate in this study, it is important that you understand why the research is being done and what it will involve. Please read or listen to the information sheet and the consent form carefully and feel free to ask for clarifications you may have.

Purpose of the study

Periodontal disease refers to a group of inflammatory conditions that affect the tissues supporting and surrounding the teeth. Despite better health indicators, the burden of periodontal disease is high in our state. Data on the burden of the problem, and healthcare service utilization helps decision-makers to allot or reorient resources according to the need of the population. The purpose of this study is to find out the burden of periodontal diseases and its impact on the quality of life among the 30–64-year-old patients attending the outpatient department of Family Health Centers in Kerala.

Procedure

If you agree to participate in my study, I would like to ask you about your sociodemographic characteristics, medical history, oral hygiene practises, adverse habits, dental health care seeking experience, utilization of the available dental health services and your oral health-related quality of life. I would also be examining your mouth with a sterilized Community Periodontal Index probe and mouth mirror. The data collection would require 20-25 minutes of your time. Sterilization of the dental instruments will be carried out using an autoclave. Autoclave is a machine that uses steam under pressure to kill harmful microorganisms. The mouth mirror and probe for each patient will be packed in separate autoclave sterilization pouches and these will be opened only during the time of clinical examination. The pouches are used for the packing of the instruments before sterilization and it maintains the sterility of the products after sterilization.

Potential risks and discomforts

Participating in the study imposes no risk to your health. However, you may experience mild discomfort during the oral examination.

Possible benefits

Though there might not be any direct benefit for you from this study, but if any oral problems are detected, you will be informed on that and I will be able to guide you for a dental follow up. Your co-operation will add greatly to understand the missed opportunity in primary care to identify periodontal conditions and manage them effectively. The findings of the study can be used to make policy suggestions for improving oral health services at the level of primary healthcare.

Cost and financial benefit

There is no cost for participation in this study. Participation is completely voluntary and no payment will be provided.

Confidentiality

This study is purely for research purpose and your identity will be kept confidential. A unique identification number will be assigned to each participant which will help to maintain the strict confidentiality of the data collected. Your name will not be used in reporting information in publications or reports. The information given by you will not be disclosed to anyone under any circumstances anywhere in the public at any time. All the copies of filled interview schedules and consent forms will be kept under the custody of principle investigator.

Withdrawal from the study

Your participation in the study is purely voluntary, and you are free to refuse to participate at any point of time, without fear of harm or penalty. You may choose not to answer any question you do not wish to and also refuse oral examination.

Contact information

For any clarification regarding the study, you can contact me and for any queries on the authentication of this study, you can contact the Member Secretary, Institutional Ethics Committee (IEC) of SCTIMST.

Principal Investigator:

Merrin Varghese

MPH Student

AMCHSS, SCTIMST

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Member Secretary

Institutional Ethics Committee

SCTIMST, TRIVANDRUM- 695011

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ANNEXURE – II

**Achutha Menon Centre for Health Science Studies (AMCHSS)
Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST)
Thiruvananthapuram-11**

Study Title:

Prevalence of periodontal disease and oral health-related quality of life among adults seeking primary care at Family Health Centers in Ernakulam district, Kerala.

Consent form

I confirm that I have read/ heard and understood all the information provided in the participant information sheet. I understand that my participation in this study is completely voluntary. I understand that I can withdraw my participation at any time during the interview and oral examination without any explanation and I also understand that my identity and personal information will be kept confidential. I have been informed who should be contacted for further clarification. I also consent for the investigator to carry out the oral checkup for me.

By signing/giving thumb impression, I agree to participate in this study.

Name of the participant

Signature/Thumb impression

Signature of Investigator

Date

ANNEXURE – III
INTERVIEW SCHEDULE - 1 (ENGLISH)

Sl.no	QUESTIONS	CODE & RESPONSES	REMARKS
GENERAL INFORMATION			
1.	Participant ID	☐ ☐ ☐ ☐ ☐ ☐	
2.	Date of interview	☐ ☐ ☐ ☐ ☐ ☐	
SOCIO-DEMOGRAPHIC DETAILS			
3.	What is your name?		
4.	What is your age (in completed years)?	☐ ☐	
5.	What is your sex?	☐ 0. Male ☐ 1. Female ☐ 2. Transgender ☐ 3. Other	
6.	Where is your residence located?	☐ 0. Panchayat ☐ 1. Municipality ☐ 2. Corporation	
7.	What is the colour of your ration card?	☐ 0. Yellow ☐ 1. Pink ☐ 2. Blue ☐ 3. White ☐ 4. No ration card	
8.	In total, how many years have you spent at school and in full-time study (excluding pre-school and kindergarten)?	☐ ☐	
9.	What is your occupation?	☐ 0. Unemployed (unable to work) ☐ 1. Unemployed (able to work) ☐ 2. Government employee ☐ 3. Non-government employee ☐ 4. Self-employed ☐ 5. Retired ☐ 6. Homemaker ☐ 7. Student ☐ 8. Others, please specify 	
MEDICAL HISTORY			
10.	Current illnesses if any?	☐ 0. No illness ☐ 1. Diabetes ☐ 2. Hypertension	

		☐ 3. Hyperlipidemia ☐ 4. Coronary heart diseases ☐ 5. Chronic kidney disease ☐ 6. Asthma/Chronic Obstructive Pulmonary Disease ☐ 7. Epilepsy ☐ 8. Arthritis ☐ 9. Malignancy ☐ 10. Osteoporosis ☐ 11. Others, please specify 	
ORAL HEALTH STATUS			
11.	How would you describe the state of your teeth?	☐ 0. Excellent ☐ 1. Very good ☐ 2. Good ☐ 3. Average ☐ 4. Poor ☐ 5. Very poor ☐ 6. Don't know	
12.	How would you describe the state of your gums?	☐ 0. Excellent ☐ 1. Very good ☐ 2. Good ☐ 3. Average ☐ 4. Poor ☐ 5. Very poor ☐ 6. Don't know	
13.	Do you have any removable dentures?	☐ 0. No ☐ 1. Yes	If 'no' go to Q.15
14.	If yes, which of these?	☐ 0. A partial denture ☐ 1. A full upper denture ☐ 2. A full lower denture	
ORAL HYGIENE PRACTICE			
15.	How often do you clean your teeth?	☐ 0. Occasionally ☐ 1. Once daily ☐ 2. Twice daily ☐ 3. More than twice daily ☐ 4. After every meal	
16.	What do you use to clean your teeth? (Multiple options possible)	☐ 0. Toothbrush ☐ 1. Toothpaste ☐ 2. Tooth powder	

		☐ 3. Charcoal ☐ 4. Chewstick/miswak ☐ 5. Leaves ☐ 6. Fingers ☐ 7. Salt ☐ 8. Others, please specify 	
17.	What technique you use to brush your teeth? (Multiple options possible)	☐ 0. Horizontal ☐ 1. Vertical ☐ 2. Circular	
18.	How do you remove the food particles stuck between teeth? (Multiple options possible)	☐ 0. Leave it as it is ☐ 1. Using tooth picks ☐ 2. Using dental floss ☐ 3. Using thread ☐ 4. Brushing ☐ 5. Using finger nails ☐ 6. Using tongue ☐ 7. Using safety pins ☐ 8. Midribs of coconut leaf ☐ 9. Rinsing with water ☐ 10. Food particles do not get trapped between the teeth ☐ 11. Others, please specify 	
DELETERIOUS HABITS(TOBACCO/ALCOHOL)			
19.	Do you currently smoke any tobacco products, such as cigarettes, cigars or pipes? (Use showcards)	☐ 0. No ☐ 1. Yes	If 'no' go to Q.21
20.	Do you currently smoke tobacco products daily?	☐ 0. No ☐ 1. Yes	
21.	In the past, did you ever smoke any tobacco products?	☐ 0. No ☐ 1. Yes	
22.	Do you currently use any smokeless tobacco products such as [snuff, chewing tobacco, betel]? (Use showcards)	☐ 0. No ☐ 1. Yes	If 'no' go to Q.24
23.	Do you currently use smokeless tobacco products daily?	☐ 0. No ☐ 1. Yes	

24.	In the past, did you ever use smokeless tobacco products such as [snuff, chewing tobacco, or betel]?	☐ 0. No ☐ 1. Yes	
25.	Have you ever consumed any alcohol such as beer, wine, spirits?	☐ 0. No ☐ 1. Yes	If 'no' go to Q.27
26.	Have you consumed any alcohol within the past 12 months?	☐ 0. No ☐ 1. Yes	
ORAL HEALTH-SEEKING BEHAVIOUR			
27.	What is the reason for visiting health centre today?	☐ 0. Treatment related to communicable diseases ☐ 1. Treatment related to non-communicable diseases ☐ 2. Injury ☐ 3. Others, please specify 	
28.	Have you ever discussed your dental problems with the health workers at FHC?	☐ 0. No ☐ 1. Yes	If 'no' go to Q.30
29.	How did they address your concern? (Multiple options possible)	☐ 0. Did not suggest any remedial action ☐ 1. Prescribed medication ☐ 2. Referred to government dental facilities ☐ 3. Referred to private dental facilities ☐ 4. Suggested to consult a dentist ☐ 5. Others, please specify	
30.	Have you received any advice on how to maintain oral health through brushing and other oral hygiene practices during the past one year?	☐ 0. No ☐ 1. Yes	If 'no' go to Q.32
31.	If yes, from whom? (Multiple options possible)	☐ 0. Physician ☐ 1. Dentist ☐ 2. Health workers ☐ 3. Relative ☐ 4. Friends associated with health-related fields ☐ 5. Other friends ☐ 6. Others, please specify	

32.	Have you had any of these problems in past 12 months? (Multiple options possible)	☐ 0. No ☐ 1. Tooth sensitivity ☐ 2. Tooth deposits ☐ 3. Tooth decay ☐ 4. Toothache ☐ 5. Pus from tooth/gums ☐ 6. Bleeding from gums ☐ 7. Swelling of gums ☐ 8. Change in the colour of gums ☐ 9. Pain in gums ☐ 10. Recent spacing between teeth ☐ 11. Loose teeth (not related to any accidents) ☐ 12. Uncomfortable or loose denture ☐ 13. Others, please specify 	If 'no' go to Q.34
33.	If yes to any of the above, what did you do to solve it?	☐ 0. Did not adopt any methods ☐ 1. Over the counter medications ☐ 2. Home remedies ☐ 3. Consulted physician ☐ 4. Alternative medicine like homeopathy or ayurveda ☐ 5. Visited dentist for treatment ☐ 6. Others, please specify 	
34.	How long has it been since a qualified dental professional examined your oral cavity?	☐ 0. Never received any dental care ☐ 1. Less than 6 months ☐ 2. 6-12 months ☐ 3. More than 1 year but less than 2 years ☐ 4. 2 or more years but less than 5 years ☐ 5. 5 or more years 	If '0' go to Q.38

35.	What was the main reason for your last visit to the dentist?	☐ 0. Consultation / advice ☐ 1. Pain or trouble with teeth, gums or mouth ☐ 2. Treatment/Follow-up treatment ☐ 3. Routine check-up ☐ 4. Others, please specify 	
36.	Which kind of facility have you visited the most for dental care?	☐ 0. Government dental college ☐ 1. Private dental college ☐ 2. Government hospitals ☐ 3. Private hospitals ☐ 4. Private dental clinics ☐ 5. Others, please specify 	
37.	If public dental facilities are not used, what is the reason? (Multiple options possible)	☐ 0. I have availed government facilities ☐ 1. Has no knowledge that dental treatments been offered in government institutions ☐ 2. Long waiting time ☐ 3. Better accessibility to non-government facilities ☐ 4. No adequate dental services ☐ 5. Shortage of staff ☐ 6. Behaviour of staff ☐ 7. Poor quality of dental treatment ☐ 8. No government dental facility in the area ☐ 9. Others, please specify 	
38.	Which do you think will be the possible barriers to your own professional oral health care seeking? (Multiple options possible)	☐ 0. No barriers ☐ 1. My current age ☐ 2. Socioeconomic status of my family ☐ 3. Does not think dental care as an emergency care ☐ 4. The cost of treatment is very high	

		☐ 5. My general health status makes it difficult for me to travel to dentist ☐ 6. Dental facility is very far away from my home or place of work ☐ 7. I don't have enough time to visit dentist ☐ 8. Fear of dental procedure ☐ 9. Need to get approval from treating medical doctor before undergoing any dental procedure ☐ 10. People will get medicines from medical shop when in tooth pain ☐ 11. Others, please specify 	
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INTERVIEW SCHEDULE -2 (ENGLISH)

ORAL HEALTH IMPACT PROFILE

DOMAIN	SL.NO	QUESTION	SCORE
Functional limitation	1	Have you had trouble pronouncing any words because of problems with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
	2	Have you felt that your sense of taste has worsened because of problems with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
Physical pain	3	Have you had painful aching in your mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
	4	Have you found it uncomfortable to eat any foods because of problems with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
Psychologic discomfort	5	Have you been self-conscious because of your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
	6	Have you felt tense because of problems with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
	7	Has been your diet been unsatisfactory because of problems with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often

Physical disability	8	Have you had to interrupt meals because of problems with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
Psychologic disability	9	Have you found it difficult to relax because of problems with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
	10	Have you been a bit embarrassed because of problems with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
Social disability	11	Have you been a bit irritable with other people because of problems with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
	12	Have you had difficulty doing your usual jobs because of problems with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
Handicap	13	Have you felt that life in general was less satisfying because of problem with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often
	14	Have you been totally unable to function because of problem with your teeth or mouth?	☐ 0. Never ☐ 1. Hardly ever ☐ 2. Occasionally ☐ 3. Fairly often ☐ 4. Very Often

ANNEXURE - IV

അച്യുത മേനോൻ സെന്റർ ഫോർ ഹെൽത്ത് സയൻസ് സ്റ്റഡീസ് (AMCHSS)

ശ്രീചിത്ര തിരുനാൾ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഫോർ മെഡിക്കൽ സയൻസ് ആൻഡ്
ടെക്നോളജി (SCTIMST)

തിരുവനന്തപുരം-11

പഠന വിവരണ പത്രിക

ഞാൻ ഡോ.മെറിൻ വർഗീസ്, തിരുവനന്തപുരത്തെ ശ്രീചിത്ര തിരുനാൾ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഫോർ മെഡിക്കൽ സയൻസ് ആൻഡ് ടെക്നോളജിയിലെ അച്യുതമേനോൻ സെന്റർ ഫോർ ഹെൽത്ത് സയൻസ് സ്റ്റഡീസിലെ പൊതുജനാരോഗ്യ വിഭാഗം ബിരുദാനന്തര ബിരുദ വിദ്യാർത്ഥിനിയാണ്. എഫിംസിഎച്ച്എസ്എസിലെ എപ്പിഡെമിയോളജി വിഭാഗം അഡീഷണൽ പ്രൊഫസറായ ഡോ. ജീമോൻ പിയുടെ മാർഗനിർദ്ദേശപ്രകാരം എന്റെ കോഴ്സ് വർക്കിന്റെ ഭാഗമായി “കേരളത്തിലെ എറണാകുളം ജില്ലയിലെ കുടുംബാരോഗ്യ കേന്ദ്രങ്ങളിൽ പ്രാഥമിക ശുശ്രൂഷ തേടുന്ന മുതിർന്നവരിൽ മോണരോഗത്തിന്റെ വ്യാപനവും ദന്താരോഗ്യവുമായി ബന്ധപ്പെട്ട ജീവിത നിലവാരവും” എന്ന വിഷയത്തിൽ ഞാൻ ഒരു പഠനം നടത്തുന്നു.

ഈ ഗവേഷണ പഠനത്തിൽ പങ്കെടുക്കാൻ നിങ്ങളെ ക്ഷണിക്കുന്നു. ഈ പഠനത്തിൽ പങ്കെടുക്കണമോ വേണ്ടയോ എന്ന് തീരുമാനിക്കുന്നതിന് മുമ്പ്, എന്തിനാണ് ഗവേഷണം നടത്തുന്നതെന്നും അതിൽ എന്താണ് ഉൾപ്പെടുകയെന്നും നിങ്ങൾ മനസ്സിലാക്കേണ്ടത് പ്രധാനമാണ്. വിവര ഷീറ്റും സമ്മത ഫോമും ശ്രദ്ധാപൂർവ്വം വായിക്കുകയോ കേൾക്കുകയോ ചെയ്യുക, നിങ്ങൾക്ക് ഉണ്ടായേക്കാവുന്ന വിശദീകരണങ്ങൾ ചോദിക്കാൻ മടിക്കേണ്ടതില്ല.

പഠനത്തിന്റെ ഉദ്ദേശ്യം

പല്ലുകളെ സംരക്ഷിച്ച് ഉറപ്പിച്ചുനിർത്തുന്ന, പല്ലിനു ചുറ്റുമുള്ള കോശങ്ങളെ ബാധിക്കുന്ന വീക്കത്തെയാണ് മോണരോഗം സൂചിപ്പിക്കുന്നത്. മെച്ചപ്പെട്ട ആരോഗ്യ സൂചകങ്ങൾ ഉണ്ടായിരുന്നിട്ടും, നമ്മുടെ സംസ്ഥാനത്ത് മോണരോഗത്തിന്റെ വ്യാപ്തി കൂടുതലാണ്. പ്രശ്നത്തിന്റെ വ്യാപ്തിയും ആരോഗ്യ സേവന വിനിയോഗത്തെ പറ്റിയുള്ള വിവരങ്ങളും പൊതു ജനത്തിന്റെ ആവശ്യത്തിനനുസരിച്ച് വിഭവങ്ങൾ അനുവദിക്കുന്നതിനോ പുനഃക്രമീകരിക്കുന്നതിനോ തീരുമാനമെടുക്കുന്നവരെ സഹായിക്കുന്നു. കേരളത്തിലെ കുടുംബാരോഗ്യ കേന്ദ്രങ്ങളിലെ ഔട്ട്പേഷ്യൻ വിഭാഗത്തിൽ സന്ദർശിക്കുന്ന 30-64 വയസ് പ്രായമുള്ള രോഗികളുടെ മോണരോഗത്തിന്റെ വ്യാപ്തിയും അത് ജീവിതനിലവാരത്തെ എങ്ങനെ ബാധിക്കുന്നു എന്നും കണ്ടെത്തുകയാണ് ഈ പഠനത്തിന്റെ ലക്ഷ്യം.

നടപടിക്രമം

എന്റെ പഠനത്തിൽ പങ്കെടുക്കാൻ നിങ്ങൾ സമ്മതിക്കുകയാണെങ്കിൽ, നിങ്ങളുടെ സാമൂഹിക ജനസംഖ്യാപരമായ സവിശേഷതകൾ, മെഡിക്കൽ ചരിത്രം, ദന്ത ശുചിത്വ ശീലങ്ങൾ, അന്താരോഗ്യകരമായ ശീലങ്ങൾ, ദന്താരോഗ്യ സംരക്ഷണം തേടുന്ന അനുഭവം, ലഭ്യമായ ദന്താരോഗ്യ സേവനങ്ങളുടെ വിനിയോഗം, നിങ്ങളുടെ ദന്താരോഗ്യവുമായി ബന്ധപ്പെട്ട ജീവിതനിലവാരം എന്നിവയെക്കുറിച്ച് ഞാൻ നിങ്ങളോട് ചോദിക്കാൻ ആഗ്രഹിക്കുന്നു. അണുവിമുക്തമാക്കിയ കമ്മ്യൂണിറ്റി പീരിയോഡോന്റൽ ഇൻഡക്സ് പ്രോബും മൗത്ത് മിററും ഉപയോഗിച്ച് ഞാൻ നിങ്ങളുടെ വായ പരിശോധിക്കും. വിവരശേഖരണത്തിന് നിങ്ങളുടെ സമയത്തിന്റെ 20-25 മിനിറ്റ് ആവശ്യമാണ്. ഓട്ടോക്ലേവ് ഉപയോഗിച്ച് ദന്ത ഉപകരണങ്ങൾ അണുവിമുക്തമാക്കും. ഹാനികരമായ സൂക്ഷ്മാണുക്കളെ ഉയർന്ന സമ്മർദ്ദത്തിലുള്ള നീരാവി ഉപയോഗിച്ച് നിർമൂലമാക്കുന്ന ഒരു യന്ത്രമാണ് ഓട്ടോക്ലേവ്. ഓരോ രോഗിക്കുമുള്ള മൗത്ത് മിററും പ്രോബും പ്രത്യേക ഓട്ടോക്ലേവ് ബാഗുകളിൽ പായ്ക്ക് ചെയ്യും, ക്ലിനിക്കൽ പരിശോധനയുടെ സമയത്ത് മാത്രമേ ഇവ തുറക്കൂ. അണുവിമുക്തമാക്കുന്നതിന് മുമ്പ് ഉപകരണങ്ങളുടെ പാക്കിംഗിനായി ഓട്ടോക്ലേവ് ബാഗുകൾ ഉപയോഗിക്കുന്നു, ഇത് അണുനശീകരണത്തിനു ശേഷവും ഉൽപ്പന്നങ്ങളുടെ ശുചിത്വം നിലനിർത്തുന്നു.

അപകട സാധ്യതകളും അസ്വാസ്ഥ്യങ്ങളും

പഠനത്തിൽ പങ്കെടുക്കുന്നത് നിങ്ങളുടെ ആരോഗ്യത്തിന് ഒരു അപകടവും ഉണ്ടാക്കുന്നില്ല. എന്നിരുന്നാലും, ദന്തപരിശോധനയിൽ നിങ്ങൾക്ക് നേരിയ അസ്വസ്ഥത അനുഭവപ്പെടാം.

സാധ്യമായ നേട്ടങ്ങൾ

ഈ പഠനത്തിൽ നിന്ന് നിങ്ങൾക്ക് നേരിട്ട് പ്രയോജനമൊന്നും ഉണ്ടായേക്കില്ലെങ്കിലും, എന്തെങ്കിലും ദന്തപ്രശ്നങ്ങൾ കണ്ടെത്തിയാൽ, അത് നിങ്ങളെ അറിയിക്കുകയും ഒരു വിശദമായ പരിശോധനയ്ക്കായി നിങ്ങളെ നയിക്കുകയും ചെയ്യാൻ കഴിയും. മോണവീക്കത്തിന്റെ അവസ്ഥകൾ തിരിച്ചറിയുന്നതിനും അവ ഫലപ്രദമായി കൈകാര്യം ചെയ്യുന്നതിനുമുള്ള പ്രാഥമിക ശുശ്രൂഷയിലെ നഷ്ടമായ അവസരം മനസ്സിലാക്കാൻ നിങ്ങളുടെ സഹകരണം വളരെയധികം സഹായിക്കും. പ്രാഥമിക ആരോഗ്യ പരിപാലന തലത്തിൽ ദന്താരോഗ്യ സേവനങ്ങൾ മെച്ചപ്പെടുത്തുന്നതിനുള്ള നയ നിർദ്ദേശങ്ങൾ നൽകാൻ പഠനത്തിന്റെ കണ്ടെത്തലുകൾ ഉപയോഗിക്കാം.

ചെലവും സാമ്പത്തിക നേട്ടവും

ഈ പഠനത്തിൽ പങ്കെടുക്കുന്നതിന് യാതൊരു ചെലവും ഇല്ല. പങ്കാളിത്തം പൂർണ്ണമായും സ്വമേധയാ ഉള്ളതാണ്. പേയ്മെന്റ് ലഭിക്കുന്നതല്ല.

രഹസ്യാത്മകത

ഈ പഠനം പൂർണ്ണമായും ഗവേഷണ ആവശ്യത്തിന് വേണ്ടിയുള്ളതാണ്, നിങ്ങളുടെ ഐഡൻറിറ്റി രഹസ്യമായി സൂക്ഷിക്കും. ഓരോ പങ്കാളിക്കും ഒരു അദിതീയ തിരിച്ചറിയൽ നമ്പർ നൽകും, ഇത് ശേഖരിക്കുന്ന ഡാറ്റയുടെ കർശനമായ രഹസ്യാത്മകത നിലനിർത്താൻ സഹായിക്കും. പ്രസിദ്ധീകരണങ്ങളിലോ റിപ്പോർട്ടുകളിലോ വിവരങ്ങൾ റിപ്പോർട്ടുചെയ്യുന്നതിന് നിങ്ങളുടെ പേര് ഉപയോഗിക്കില്ല. നിങ്ങൾ നൽകുന്ന വിവരങ്ങൾ ഒരു കാരണവശാലും ആരോടും ഒരു സാഹചര്യത്തിലും വെളിപ്പെടുത്തില്ല. പൂരിപ്പിച്ച ഇന്റർവ്യൂ ഷെഡ്യൂളുകളുടെയും സമ്മത ഫോമുകളുടെയും എല്ലാ പകർപ്പുകളും പ്രധാന അന്വേഷകന്റെ കസ്റ്റഡിയിൽ സൂക്ഷിക്കും.

പഠനത്തിൽ നിന്ന് പിന്മാറൽ

പഠനത്തിലെ നിങ്ങളുടെ പങ്കാളിത്തം പൂർണ്ണമായും സ്വമേധയാ ഉള്ളതാണ്, ഉപദ്രവമോ ശിക്ഷയോ ഭയക്കാതെ ഏത് സമയത്തും പങ്കെടുക്കാൻ വിസമ്മതിക്കാൻ നിങ്ങൾക്ക് സ്വാതന്ത്ര്യമുണ്ട്. നിങ്ങൾക്ക് താൽപ്പര്യമില്ലാത്ത ഒരു ചോദ്യത്തിനും ഉത്തരം നൽകേണ്ടതില്ലെന്നും ദന്തപരിശോധന നിരസിക്കാനും നിങ്ങൾക്ക് തീരുമാനിക്കാം.

ബന്ധപ്പെടാനുള്ള വിവരങ്ങൾ

പഠനവുമായി ബന്ധപ്പെട്ട എന്തെങ്കിലും വ്യക്തതയ്ക്ക്, നിങ്ങൾക്ക് എന്നെ ബന്ധപ്പെടാനും, ഈ പഠനത്തിന്റെ ആധികാരികതയുമായി ബന്ധപ്പെട്ടുള്ള വ്യക്തതയ്ക്ക്, നിങ്ങൾക്ക് SCTIMST ഇൻസ്റ്റിറ്റ്യൂഷണൽ എത്തിക്സ് കമ്മിറ്റി മെമ്പർ സെക്രട്ടറിയുമായി ബന്ധപ്പെടാം.

പ്രധാന അന്വേഷക:

മെറിൻ വർഗീസ്

എംപിഎച്ച് വിദ്യാർത്ഥി

AMCHSS, SCTIMST

മെഡിക്കൽ കോളേജ് (പി.ഒ), തിരുവനന്തപുരം-11

ബന്ധപ്പെടേണ്ട നമ്പർ: +91 9400628811

ഇമെയിൽ ഐഡി: merrinvarghese@sctimst.ac.in

മെമ്പർ സെക്രട്ടറി:

ഡോ ശ്രീനിവാസ് ജി

മെമ്പർ സെക്രട്ടറി

ഇൻസ്റ്റിറ്റ്യൂഷണൽ എത്തിക്സ് കമ്മിറ്റി

SCTIMST, തിരുവനന്തപുരം- 695011

ഓഫീസ്: 04712524689

ഇമെയിൽ: iec.mem.sec@sctimst.ac.in

ANNEXURE - V

അച്യുത മേനോൻ സെന്റർ ഫോർ ഹെൽത്ത് സയൻസ് സ്റ്റഡീസ് (AMCHSS)

ശ്രീചിത്ര തിരുനാൾ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഫോർ മെഡിക്കൽ സയൻസസ് ആൻഡ്
ടെക്നോളജി (SCTIMST)

തിരുവനന്തപുരം-11

പഠന ശീർഷകം:

കേരളത്തിലെ എറണാകുളം ജില്ലയിലെ കുടുംബാരോഗ്യ കേന്ദ്രങ്ങളിൽ പ്രാഥമിക ശുശ്രൂഷ തേടുന്ന മുതിർന്നവരിൽ മോണരോഗത്തിന്റെ വ്യാപനവും ദന്താരോഗ്യവുമായി ബന്ധപ്പെട്ട ജീവിത നിലവാരവും.

അനുമതി പത്രം

പഠന വിവരണ പത്രികയിൽ നൽകിയിരിക്കുന്ന എല്ലാ വിവരങ്ങളും ഞാൻ വായിക്കുകയും / കേൾക്കുകയും മനസ്സിലാക്കുകയും ചെയ്തുവെന്ന് ഞാൻ സ്ഥിരീകരിക്കുന്നു. ഈ പഠനത്തിൽ എന്റെ പങ്കാളിത്തം പൂർണ്ണമായും സ്വമേധയാ ഉള്ളതാണെന്ന് ഞാൻ മനസ്സിലാക്കുന്നു. അഭിമുഖത്തിൽ നിന്നും ദന്തപരിശോധനയിൽ നിന്നും എനിക്ക് എപ്പോൾ വേണമെങ്കിലും ഒരു വിശദീകരണവുമില്ലാതെ എന്റെ പങ്കാളിത്തം പിൻവലിക്കാമെന്നും എന്റെ ഐഡൻറിറ്റിയും വ്യക്തിഗത വിവരങ്ങളും രഹസ്യമായി സൂക്ഷിക്കുമെന്നും ഞാൻ മനസ്സിലാക്കുന്നു. കൂടുതൽ വ്യക്തതയ്ക്കായി ആരെയാണ് ബന്ധപ്പെടേണ്ടതെന്ന് എന്നെ അറിയിച്ചിട്ടുണ്ട്. അന്വേഷകൻ എനിക്കായി ദന്തപരിശോധന നടത്താനും ഞാൻ സമ്മതിക്കുന്നു.

ഒപ്പിടുന്നതിലൂടെ/ തള്ളവിരലിന്റെ മുദ്ര നൽകുന്നതിലൂടെ, ഈ പഠനത്തിൽ പങ്കെടുക്കാൻ ഞാൻ സമ്മതിക്കുന്നു.

പങ്കെടുക്കുന്നയാളുടെ പേര്

ഒപ്പ്/തള്ളവിരലിന്റെ മുദ്ര

അന്വേഷകന്റെ ഒപ്പ്

തീയതി

ANNEXURE – VI

INTERVIEW SCHEDULE -1 (MALAYALAM)

ക്രമ നമ്പർ	ചോദ്യങ്ങൾ	കോഡും പ്രതികരണങ്ങളും	പരാമർശം
പൊതുവായ വിവരങ്ങൾ			
1.	പങ്കെടുക്കുന്നയാളുടെ ഐഡി നമ്പർ	☐ ☐ ☐ ☐ ☐ ☐	
2.	ഇന്റർവ്യൂ തീയതി	☐ ☐ ☐ ☐ ☐	
സാമൂഹ്യ-ജനസംഖ്യാ വിശദാംശങ്ങൾ			
3.	താങ്കളുടെ പേരെന്താണ്		
4.	പൂർത്തിയായ വയസ്സ് എത്രയാണ്	☐ ☐	
5.	നിങ്ങളുടെ ലിംഗഭേദം എന്താണ്?	☐ 0. ആൺ ☐ 1. സ്ത്രീ ☐ 2. ട്രാൻസ്ജെൻഡർ ☐ 3. മറ്റുള്ളവ	
6.	നിങ്ങളുടെ താമസസ്ഥലം എവിടെയാണ്?	☐ 0. പഞ്ചായത്ത് ☐ 1. മുനിസിപ്പാലിറ്റി ☐ 2. കോർപ്പറേഷൻ	
7.	നിങ്ങളുടെ റേഷൻ കാർഡിന്റെ നിറം എന്താണ്?	☐ 0. മഞ്ഞ ☐ 1. പിങ്ക് ☐ 2. നീല ☐ 3. വെളുപ്പ് ☐ 4. റേഷൻ കാർഡ് ഇല്ല	
8.	മൊത്തത്തിൽ, നിങ്ങൾ സ്കൂളിലും മുഴുവൻ സമയ പഠനത്തിലും (പി-സ്കൂളും കിന്റർഗാർട്ടനും ഒഴികെ) എത്ര വർഷം ചെലവഴിച്ചു?	☐ ☐	
9.	നിങ്ങളുടെ തൊഴിൽ എന്താണ്?	☐ 0. തൊഴിൽ രഹിതൻ (ജോലി ചെയ്യാൻ കഴിയുന്നില്ല) ☐ 1. തൊഴിൽ രഹിതൻ (ജോലി ചെയ്യാൻ കഴിയും) ☐ 2. സർക്കാർ ജീവനക്കാരൻ ☐ 3. സർക്കാർ ഇതര ജീവനക്കാരൻ ☐ 4. സ്വയം തൊഴിൽ ☐ 5. വിരമിച്ചു ☐ 6. വീട്ടമ്മ ☐ 7. വിദ്യാർത്ഥി ☐ 8. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	

രോഗവിവരം			
10.	നിലവിൽ എന്തെങ്കിലും അസുഖങ്ങൾ ഉണ്ടോ	☐ 0. അസുഖമില്ല ☐ 1. പ്രമേഹം ☐ 2. രക്താതിമർദ്ദം ☐ 3. ഉയർന്ന കൊളസ്ട്രോൾ ☐ 4. ഹൃദ്രോഗം ☐ 5. വൃക്കരോഗം ☐ 6. ആസ്ത്മ/ വിട്ടുമാറാത്ത ശ്വാസകോശ സംബന്ധമായ അസുഖം ☐ 7. അപസ്മാരം ☐ 8. സന്ധിവാതം ☐ 9. അർബുദം ☐ 10. അസ്ഥിയുരുക്കം ☐ 11. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	
ദന്താരോഗ്യ സ്ഥിതി			
11.	നിങ്ങളുടെ പല്ലുകളുടെ അവസ്ഥയെ എങ്ങനെ വിവരിക്കും?	☐ 0. മികച്ചത് ☐ 1. വളരെ നല്ലത് ☐ 2. നല്ലത് ☐ 3. ശരാശരി ☐ 4. മോശം ☐ 5. വളരെ മോശം ☐ 6. അറിയില്ല	
12.	നിങ്ങളുടെ മോണയുടെ അവസ്ഥയെ എങ്ങനെ വിവരിക്കും?	☐ 0. മികച്ചത് ☐ 1. വളരെ നല്ലത് ☐ 2. നല്ലത് ☐ 3. ശരാശരി ☐ 4. മോശം ☐ 5. വളരെ മോശം ☐ 6. അറിയില്ല	
13.	നിങ്ങളുടെ പക്കൽ നീക്കം ചെയ്യാവുന്ന പല്ലുകൾ ഉണ്ടോ?	☐ 0. ഇല്ല ☐ 1. അതെ	'ഇല്ല' എങ്കിൽ Q.15-ലേക്ക് പോകുക
14.	ഉണ്ടെങ്കിൽ, ഇവയിൽ ഏതാണ്?	☐ 0. ഭാഗികമായുള്ളത് ☐ 1. മുകളിലെ നിര പൂർണ്ണമായും ☐ 2. താഴത്തെ നിര പൂർണ്ണമായും	

ദന്ത ശുചിത്വ ശീലങ്ങൾ			
15.	എത്ര തവണ നിങ്ങൾ പല്ല് വൃത്തിയാക്കുന്നു?	☐ 0. വല്ലപ്പോഴും ☐ 1. ദിവസത്തിൽ ഒരിക്കൽ ☐ 2. ദിവസേന രണ്ടുതവണ ☐ 3. ദിവസത്തിൽ രണ്ടുതവണയിൽ കൂടുതൽ ☐ 4. ഓരോ ഭക്ഷണത്തിനു ശേഷവും	
16.	നിങ്ങളുടെ പല്ലുകൾ വൃത്തിയാക്കാൻ നിങ്ങൾ എന്താണ് ഉപയോഗിക്കുന്നത്? (ഒന്നിലധികം ഓപ്ഷനുകൾ സാധ്യമാണ്)	☐ 0. ടൂത്ത് ബ്രഷ് ☐ 1. ടൂത്ത് പേസ്റ്റ് ☐ 2. ഉമിക്കരി ☐ 3. ച്യൂസ്റ്റിക്/ഉകമരം ☐ 4. പല്ല് പൊടി ☐ 5. ഇലകൾ ☐ 6. വിരലുകൾ ☐ 7. ഉപ്പ് ☐ 8. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	
17.	പല്ല് തേക്കാൻ നിങ്ങൾ എന്ത് രീതിയാണ് ഉപയോഗിക്കുന്നത്? (ഒന്നിലധികം ഓപ്ഷനുകൾ സാധ്യമാണ്)	☐ 0. ഇരുവശങ്ങളിലേക്ക് ☐ 1. മുകളിൽ നിന്ന് താഴേക്ക് ☐ 2. വൃത്താകൃതിയിൽ	
18.	പല്ലുകൾക്കിടയിൽ കുടുങ്ങിയ ഭക്ഷണ കണികകൾ എങ്ങനെയാണ് നീക്കം ചെയ്യാറുള്ളത്? (ഒന്നിലധികം ഓപ്ഷനുകൾ സാധ്യമാണ്)	☐ 0. അത് അതേപടി വിടുക ☐ 1. ടൂത്ത് പിക്കുകൾ ഉപയോഗിക്കുന്നു ☐ 2. ഡെന്റൽ ഫ്ലോസ് ഉപയോഗിക്കുന്നു ☐ 3. നൂല് ഉപയോഗിക്കുന്നു ☐ 4. ബ്രഷ് ചെയ്യും ☐ 5. വിരൽ നഖങ്ങൾ ഉപയോഗിച്ച് ☐ 6. നാവ് ഉപയോഗിച്ച് ☐ 7. പിന്നുകൾ ഉപയോഗിച്ച് ☐ 8. ഹാർക്കിലി ☐ 9. വെള്ളം ഉപയോഗിച്ച് വായ കഴുകുക ☐ 10. പല്ലുകൾക്കിടയിൽ ഭക്ഷണകണികകൾ കുടുങ്ങാറില്ല ☐ 11. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	

ഹാനികരമായ ശീലങ്ങൾ (പുകയില/മദ്യം)			
19.	നിങ്ങൾ നിലവിൽ സിഗരറ്റ്, ചുരുട്ട് അല്ലെങ്കിൽ പൈപ്പുകൾ പോലുള്ള ഏതെങ്കിലും പുകയില ഉൽപ്പന്നങ്ങൾ വലിക്കുന്നുണ്ടോ? (ഷോകാർഡുകൾ ഉപയോഗിക്കുക)	☐ 0. ഇല്ല ☐ 1. അതെ	'ഇല്ല' എങ്കിൽ Q.21-ലേക്ക് പോകുക
20.	നിങ്ങൾ നിലവിൽ ദിവസവും പുകയില ഉൽപ്പന്നങ്ങൾ വലിക്കാറുണ്ടോ?	☐ 0. ഇല്ല ☐ 1. അതെ	
21.	പണ്ട്, നിങ്ങൾ എപ്പോഴെങ്കിലും പുകയില ഉൽപ്പന്നങ്ങൾ വലിച്ചിട്ടുണ്ടോ?	☐ 0. ഇല്ല ☐ 1. അതെ	
22.	നിങ്ങൾ നിലവിൽ പുകയില്ലാത്ത പുകയില ഉൽപ്പന്നങ്ങളായ [മൂക്കുപൊടി, ചവയ്ക്കുന്ന പുകയില, വെറ്റില] ഉപയോഗിക്കുന്നുണ്ടോ? (ഷോകാർഡുകൾ ഉപയോഗിക്കുക)	☐ 0. ഇല്ല ☐ 1. അതെ	'ഇല്ല' എങ്കിൽ Q.24-ലേക്ക് പോകുക
23.	നിങ്ങൾ നിലവിൽ ദിവസവും പുകയില്ലാത്ത പുകയില ഉൽപ്പന്നങ്ങൾ ഉപയോഗിക്കാറുണ്ടോ?	☐ 0. ഇല്ല ☐ 1. അതെ	
24.	മുൻകാലങ്ങളിൽ, നിങ്ങൾ എപ്പോഴെങ്കിലും പുകയില്ലാത്ത പുകയില ഉൽപ്പന്നങ്ങൾ ഉപയോഗിച്ചിട്ടുണ്ടോ?	☐ 0. ഇല്ല ☐ 1. അതെ	
25.	ബിയർ, വൈൻ, സ്പിരിറ്റ് തുടങ്ങിയ ഏതെങ്കിലും മദ്യം നിങ്ങൾ എപ്പോഴെങ്കിലും കഴിച്ചിട്ടുണ്ടോ?	☐ 0. ഇല്ല ☐ 1. അതെ	'ഇല്ല' എങ്കിൽ Q.27-ലേക്ക് പോകുക
26.	കഴിഞ്ഞ 12 മാസത്തിനുള്ളിൽ നിങ്ങൾ എന്തെങ്കിലും മദ്യം കഴിച്ചിട്ടുണ്ടോ?	☐ 0. ഇല്ല ☐ 1. അതെ	
ദന്താരോഗ്യം തേടുന്ന പെരുമാറ്റം			
27.	ഇന്ന് ആരോഗ്യ കേന്ദ്രം സന്ദർശിക്കാനുള്ള കാരണം എന്താണ്?	☐ 0. പകർച്ചവ്യാധി രോഗങ്ങളുമായി ബന്ധപ്പെട്ട ചികിത്സ	

		☐ 1. പകർച്ചരോഗവ്യാധി രോഗങ്ങളുമായി ബന്ധപ്പെട്ട ചികിത്സ ☐ 2. പരിക്ക് ☐ 3. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	
28.	FHC-യിലെ ആരോഗ്യ പ്രവർത്തകരുമായി നിങ്ങൾ എപ്പോഴെങ്കിലും നിങ്ങളുടെ ദന്ത പ്രശ്നങ്ങൾ ചർച്ച ചെയ്തിട്ടുണ്ടോ?	☐ 0. ഇല്ല ☐ 1. അതെ	'ഇല്ല' എങ്കിൽ Q.30-ലേക്ക് പോകുക
29.	നിങ്ങളുടെ ആശങ്കയെ അവർ എങ്ങനെ പരിഹരിച്ചു? (ഒന്നിലധികം ഓപ്ഷനുകൾ സാധ്യമാണ്)	☐ 0. പരിഹാര നടപടികളൊന്നും നിർദ്ദേശിച്ചിട്ടില്ല ☐ 1. മരുന്ന് നിർദ്ദേശിച്ചു ☐ 2. സർക്കാർ ഡെന്റൽ സൗകര്യങ്ങളിലേക്ക് റഫർ ചെയ്തു ☐ 3. സ്വകാര്യ ഡെന്റൽ സൗകര്യങ്ങളിലേക്ക് റഫർ ചെയ്തു ☐ 4. ഒരു ദന്തരോഗവിദഗ്ദ്ധനെ സമീപിക്കാൻ നിർദ്ദേശിച്ചു ☐ 5. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	
30.	കഴിഞ്ഞ ഒരു വർഷത്തിനിടയിൽ ബ്രഷിംഗിലൂടെയും മറ്റ് ശുചിത്വ രീതികളിലൂടെയും ദന്താരോഗ്യം എങ്ങനെ നിലനിർത്താം എന്നതിനെക്കുറിച്ച് നിങ്ങൾക്ക് എന്തെങ്കിലും ഉപദേശം ലഭിച്ചിട്ടുണ്ടോ?	☐ 0. ഇല്ല ☐ 1. അതെ	'ഇല്ല' എങ്കിൽ Q.33-ലേക്ക് പോകുക
31.	ഉണ്ടെങ്കിൽ, ആരിൽ നിന്ന്? (ഒന്നിലധികം ഓപ്ഷനുകൾ സാധ്യമാണ്)	☐ 0. ഫിസിഷ്യൻ ☐ 1. ദന്തഡോക്ടർ ☐ 2. ആരോഗ്യ പ്രവർത്തകർ ☐ 3. ബന്ധു ☐ 4. ആരോഗ്യ സംബന്ധമായ മേഖലകളുമായി ബന്ധപ്പെട്ട സുഹൃത്തുക്കൾ ☐ 5. മറ്റ് സുഹൃത്തുക്കൾ	

		☐ 6. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	
32.	കഴിഞ്ഞ 12 മാസമായി നിങ്ങൾക്ക് ഈ പ്രശ്നങ്ങളിൽ എന്തെങ്കിലും ഉണ്ടായിട്ടുണ്ടോ? (ഒന്നിലധികം ഓപ്ഷനുകൾ സാധ്യമാണ്)	☐ 0. ഇല്ല ☐ 1. പല്ല് പുളിപ്പ് ☐ 2. പല്ലിലെ കക്ക ☐ 3. പല്ലിന്റേ കേട് ☐ 4. പല്ലുവേദന ☐ 5. പല്ലിൽ/മോണയിൽ നിന്നുള്ള പഴുപ്പ് ☐ 6. മോണയിൽ നിന്ന് രക്തം വരുക ☐ 7. മോണയുടെ വീക്കം ☐ 8. മോണയുടെ നിറത്തിൽ മാറ്റം ☐ 9. മോണയിൽ വേദന ☐ 10. സമീപകാലത്തുണ്ടായ പല്ലുകൾക്കിടയിലെ അകലം ☐ 11. ഇളക്കമുള്ള പല്ലുകൾ (അപകടങ്ങളുമായി ബന്ധപ്പെട്ടതല്ല) ☐ 12. അസുഖകരമായ അല്ലെങ്കിൽ അയഞ്ഞ കൃത്രിമ പല്ലുകൾ ☐ 13. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	'ഇല്ല' എങ്കിൽ Q.34-ലേക്ക് പോകുക
33.	മുകളിൽ പറഞ്ഞവയിലേതെങ്കിലും ഉണ്ടെങ്കിൽ, അത് പരിഹരിക്കാൻ നിങ്ങൾ എന്താണ് ചെയ്തത്?	☐ 0. ഒരു രീതിയും സ്വീകരിച്ചില്ല ☐ 1. കുറിപ്പടി ഇല്ലാതെ മരുന്ന് വാങ്ങി ☐ 2. വീട്ടുവൈദ്യങ്ങൾ ☐ 3. ഫിസിഷ്യനെ സമീപിച്ചു ☐ 4. ഹോമിയോപ്പതി അല്ലെങ്കിൽ ആയുർവേദം പോലെയുള്ള ഇതര മരുന്ന് ☐ 5. ചികിത്സയ്ക്കായി ദന്തരോഗവിദഗ്ദ്ധനെ സന്ദർശിച്ചു ☐ 6. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	
34.	യോഗ്യതയുള്ള ഒരു ദന്തരോഗവിദഗ്ദ്ധൻ നിങ്ങളുടെ വായ പരിശോധിച്ചിട്ട് എത്ര നാളായി?	☐ 0. ഒരിക്കലും ദന്ത പരിചരണം ലഭിച്ചിട്ടില്ല ☐ 1. 6 മാസത്തിൽ താഴെ ☐ 2. 6-12 മാസം	'ഇല്ല' എങ്കിൽ Q.38 ലേക്ക് പോകുക

		☐ 3. 1 വർഷത്തിൽ കൂടുതൽ എന്നാൽ 2 വർഷത്തിൽ കുറവ് ☐ 4. രണ്ടോ അതിലധികമോ വർഷം, എന്നാൽ 5 വർഷത്തിൽ താഴെ ☐ 5. 5 അല്ലെങ്കിൽ അതിൽ കൂടുതൽ വർഷം	
35.	ദന്തരോഗവിദഗ്ദ്ധനെ നിങ്ങൾ അവസാനമായി സന്ദർശിച്ചതിന്റെ പ്രധാന കാരണം എന്തായിരുന്നു?	☐ 0. പരിശോധന / ഉപദേശം ☐ 1. പല്ലുകൾ, മോണ അല്ലെങ്കിൽ വായ എന്നിവയിൽ വേദനയോ ബുദ്ധിമുട്ടോ ☐ 2. ചികിത്സ / തുടർ ചികിത്സ ☐ 3. പതിവ് പരിശോധന ☐ 4. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	
36.	ഏത് തരത്തിലുള്ള സ്ഥാപനത്തിലാണ് നിങ്ങൾ ദന്തചികിത്സയ്ക്കായി ഏറ്റവും കൂടുതൽ പോയിട്ടുള്ളത്?	☐ 0. സർക്കാർ ഡെന്റൽ കോളേജ് ☐ 1. സ്വകാര്യ ഡെന്റൽ കോളേജ് ☐ 2. സർക്കാർ ആശുപത്രികൾ ☐ 3. സ്വകാര്യ ആശുപത്രികൾ ☐ 4. സ്വകാര്യ ഡെന്റൽ ക്ലിനിക്കുകൾ ☐ 5. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	
37.	സർക്കാർ ഡെന്റൽ സൗകര്യങ്ങൾ ഉപയോഗിക്കുന്നില്ലെങ്കിൽ, എന്താണ് കാരണം? (ഒന്നിലധികം ഓപ്ഷനുകൾ സാധ്യമാണ്)	☐ 0. സർക്കാർ സൗകര്യങ്ങൾ ഞാൻ പ്രയോജനപ്പെടുത്തിയിട്ടുണ്ട് ☐ 1. സർക്കാർ സ്ഥാപനങ്ങളിൽ ദന്തചികിത്സകൾ ഉള്ളതായി അറിവില്ല ☐ 2. നീണ്ട കാത്തിരിപ്പ് സമയം ☐ 3. സർക്കാരിതര സൗകര്യങ്ങളിലേക്ക് പോകാനാണ് എളുപ്പം	

		☐ 4. മതിയായ സേവനങ്ങൾ ഇല്ല ☐ 5. ജീവനക്കാരുടെ കുറവ് ☐ 6. ജീവനക്കാരുടെ പെരുമാറ്റം ☐ 7. ദന്ത ചികിത്സയുടെ മോശം ഗുണനിലവാരം ☐ 8. സമീപത്ത് സർക്കാർ ദന്ത ചികിത്സ സൗകര്യമില്ല ☐ 9. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	
38.	ദന്തഡോക്ടറുടെ സേവനം തേടുന്നതിന് നേരിടുന്ന തടസ്സങ്ങൾ എന്തെല്ലാമാണ് നിങ്ങൾ കരുതുന്നത്? (ഒന്നിലധികം ഓപ്ഷനുകൾ സാധ്യമാണ്)	☐ 0. തടസ്സങ്ങളൊന്നുമില്ല ☐ 1. എന്റെ ഇപ്പോഴത്തെ പ്രായം ☐ 2. എന്റെ കുടുംബത്തിന്റെ സാമൂഹിക സാമ്പത്തിക നില ☐ 3. ദന്ത സംരക്ഷണം ഒരു അടിയന്തര പരിചരണമായി കരുതുന്നില്ല ☐ 4. ചികിത്സാ ചെലവ് വളരെ കൂടുതലാണ് ☐ 5. എന്റെ പൊതുവായ ആരോഗ്യസ്ഥിതി എന്നെ ദന്തഡോക്ടറിലേക്ക് കൊണ്ടുപോകുന്നത് ബുദ്ധിമുട്ടാക്കുന്നു ☐ 6. ഡെന്റൽ ക്ലിനിക് എന്റെ വീട്ടിൽ നിന്നോ ജോലി സ്ഥലത്തു നിന്നോ വളരെ അകലെയാണ് ☐ 7. ദന്തരോഗ്യവിദഗ്ദ്ധനെ സന്ദർശിക്കാൻ എനിക്ക് മതിയായ സമയമില്ല ☐ 8. ദന്തചികിത്സയോടുള്ള ഭയം ☐ 9. ഏതെങ്കിലും ദന്തചികിത്സയ്ക്ക് വിധേയമാകുന്നതിന് മുമ്പ് ചികിത്സിക്കുന്ന ഡോക്ടറുടെ അനുഭവത്തിന്റേതല്ലേ ☐ 10. പല്ലുവേദന വരുമ്പോൾ ആളുകൾക്ക് മെഡിക്കൽ	

		ഷോപ്പിൽ നിന്ന് മരുന്ന് കിട്ടും □11. മറ്റുള്ളവ, ദയവായി വ്യക്തമാക്കുക	
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INTERVIEW SCHEDULE – 2 (MALAYALAM)

ORAL HEALTH IMPACT PROFILE - 14

ക്രമ നമ്പർ	ചോദ്യം	സ്കോർ
1.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നങ്ങൾ മൂലം, സംസാരിക്കുമ്പോൾ ഏതെങ്കിലും വാക്കുകൾ ഉച്ചരിക്കാൻ വിഷമം അനുഭവപ്പെട്ടിട്ടുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
2.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നങ്ങൾ മൂലം ആഹാരത്തിന്റേ സ്വാദ് അറിയാനുള്ള കഴിവ് കുറഞ്ഞതായി അനുഭവപ്പെട്ടിട്ടുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
3.	നിങ്ങൾക്ക് എപ്പോഴെങ്കിലും വായിൽ വേദനയുണ്ടായിട്ടുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
4.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നങ്ങൾ മൂലം ഏതെങ്കിലും തരത്തിലുള്ള ഭക്ഷണങ്ങൾ കഴിക്കുമ്പോൾ അസ്വസ്ഥത അനുഭവപ്പെട്ടിട്ടുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
5.	നിങ്ങളുടെ പല്ല്, വായ എന്നിവയുടെ ഏതെങ്കിലും പ്രശ്നങ്ങൾ നിങ്ങളെ അലട്ടുന്നുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
6.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നങ്ങൾ മൂലം നിങ്ങൾക്ക് മാനസിക പിരിമുറുക്കം (ടെൻഷൻ) ഉണ്ടായിട്ടുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
7.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നങ്ങൾ മൂലം നിത്യാഹാരത്തിൽ അത്യാപ്തി അനുഭവപ്പെടാറുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും

		☐ 4. എല്ലായ്പ്പോഴും
8.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നങ്ങൾ മൂലം ഭക്ഷണം കഴിക്കുന്നത് തടസ്സപ്പെട്ടിട്ടുണ്ടായിരുന്നോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
9.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നങ്ങൾ മൂലം നിങ്ങൾക്ക് ശാന്തമായിരിക്കുന്നതിൽ ബുദ്ധിമുട്ടുണ്ടായിട്ടുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
10.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നങ്ങൾ മൂലം നിങ്ങൾക്ക് അല്പം നാണക്കേട് അനുഭവപ്പെടാറുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
11.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നങ്ങൾ മൂലം മറ്റുള്ളവരെ അഭിമുഖീകരിക്കേണ്ടി വരുമ്പോൾ അല്പം അസ്വസ്ഥരാകാറുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
12.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നത്താൽ നിങ്ങൾ നിത്യേന ചെയ്യുന്ന ജോലികളിൽ ബുദ്ധിമുട്ട് (പ്രയാസം) അനുഭവപ്പെട്ടിട്ടുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
13.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നത്താൽ ജീവിതം പൊതുവെ വിരസമായി അനുഭവപ്പെട്ടിട്ടുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും
14.	നിങ്ങളുടെ പല്ലിന്റേയോ വായയുടെയോ പ്രശ്നത്താൽ നിങ്ങൾ പൂർണ്ണമായും (തികച്ചും) പ്രവർത്തനരഹിതരായിരുന്നിട്ടുണ്ടോ?	☐ 0. ഒരിക്കലുമില്ല ☐ 1. വളരെ അപൂർവ്വമായി ☐ 2. വല്ലപ്പോഴും/ ചിലപ്പോൾ ☐ 3. മിക്കപ്പോഴും ☐ 4. എല്ലായ്പ്പോഴും

ANNEXURE - VII

WORLD HEALTH ORGANISATION ORAL HEALTH ASSESSMENT FORM FOR

ADULTS-2013

PARTICIPANT ID: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

PERIODONTAL STATUS (MODIFIED CPI)

	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
BLEEDING																
POCKET																

BLEEDING																
POCKET																
	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38

SCORING CRITERIA

GINGIVAL BLEEDING	POCKET
0 = Absence of condition 1 = Presence of condition 9 = Tooth excluded X = Tooth not present	0 = Absence of condition 1 = Pocket 4-5 mm 2 = Pocket 6mm or more 9 = Tooth excluded X = Tooth not present

LOSS OF ATTACHMENT

17/16	11	26/27
47/46	31	36/37

SCORING CRITERIA

0 = 0-3 mm

1 = 4-5 mm [CEJ within black band]

2 = 6-8 mm [CEJ between upper limit of black band and 8.5 mm ring]

3 = 9-11 mm [CEJ between 8.5 mm and 11.5 mm ring]

4 = 12 mm or more [CEJ beyond 11.5 mm ring]

X = Excluded sextant

9 = Not recorded

ANNEXURE – VIII

SHOWCARDS

Smoked tobacco products



Manufactured cigarettes



Hand-rolled cigarettes



Pipe



Cigars, e.g., cigarillos, double coronas, cheroots, stumpen, chutts and dhuntis



Shisha

Smokeless tobacco products



Snuff, available in wet and dry form



Chewing tobacco



Betel nut, quid

ANNEXURE – IX

QUESTIONS AND WEIGHTS FOR THE OHIP-14

DIMENSION	SL.NO	QUESTION	WEIGHT
Functional limitation	1	Have you had trouble pronouncing any words because of problems with your teeth or mouth?	0.51
	2	Have you felt that your sense of taste has worsened because of problems with your teeth or mouth?	0.49
Physical pain	3	Have you had painful aching in your mouth?	0.34
	4	Have you found it uncomfortable to eat any foods because of problems with your teeth or mouth?	0.66
Psychologic discomfort	5	Have you been self-conscious because of your teeth or mouth?	0.45
	6	Have you felt tense because of problems with your teeth or mouth?	0.55
Physical disability	7	Has been your diet been unsatisfactory because of problems with your teeth or mouth?	0.52
	8	Have you had to interrupt meals because of problems with your teeth or mouth?	0.48
Social disability	9	Have you found it difficult to relax because of problems with your teeth or mouth?	0.60
	10	Have you been a bit embarrassed because of problems with your teeth or mouth?	0.40
Psychologic disability	11	Have you been a bit irritable with other people because of problems with your teeth or mouth?"?	0.62
	12	Have you had difficulty doing your usual jobs because of problems with your teeth or mouth?	0.38
Handicap	13	Have you felt that life in general was less satisfying because of problem with your teeth or mouth?	0.59
	14	Have you been totally unable to function because of problem with your teeth or mouth?	0.41

ANNEXURE - X
SCTIMST IEC APPROVAL LETTER



श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेन्द्रम
तिरुवनन्तपुरम - ६९५०११, केरल, इंडिया
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY, TRIVANDRUM
Thiruvananthapuram - 695 011, Kerala, India
(An Institute of National Importance under Govt. of India)

Grams : Chitramet, Phone : +91-471-2443152, Fax : +91-471-2550728 / 2446433, E-mail : sct@sctimst.ac.in, Website : www.sctimst.ac.in

Institutional Ethics Committee

CDSCO Registration No: ECR/169/Inst/KL/2013/RR-21
DHR Registration No: EC/NEW/INST/2022/2775

SCT/IEC/2166/DECEMBER/2023

15.01.2024

Dr. Merrin Varghese
MPH Student, AMCHSS
SCTIMST, Thiruvananthapuram

Dear Dr. Merrin Varghese,

The Institutional Ethics Committee held on 30th December, 2023, reviewed and discussed your application to conduct the study titled "PREVALENCE OF PERIODONTAL DISEASE AND ORAL HEALTH-RELATED QUALITY OF LIFE AMONG ADULTS SEEKING PRIMARY CARE AT FAMILY HEALTH CENTERS IN ERNAKULAM DISTRICT, KERALA" (IEC /2166) "

Principal Investigator	Dr. Merrin Varghese, MPH Student, AMCHSS, SCTIMST
Co-Principal Investigator(s)	Dr Jeemon P., Additional Professor of Epidemiology, AMCHSS, SCTIMST
Duration of the study	6 months

The following members of the Ethics Committee were present at the meeting held on 30th December, 2023

SL. No.	Member Name	Highest Degree	Gender	Scientific /Non Scientific	Affiliation with Institution(s)
1.	Smt. Sathi Nair	MA (English Literature)	Female	Lay Person	No
2.	Dr. Kala Kesavan P	MBBS,MD	Female	Basic Medical Scientist	No
3.	Adv. Priya Kaimal	LLM, MBL	Female	Legal Expert	No
4.	Dr. P. Manickam	BSMS, MSc (Epid), PhD	Male	Health Science Expert/ Social Scientist	No
5.	Dr. Christina George	MD Psychiatry	Female	Clinician	No
6.	Dr. Narayanan Namboodiri. K K	MBBS,MD,DM	Male	Clinician	Yes
7.	Dr. Biju Soman	MBBS,MD, DPH, MSc, DLSHTM	Male	Basic Medical Scientist	Yes

The following documents were reviewed:

Original submission

1. Checklist Form
2. Covering letter addressed to the Chairman, IEC, SCTIMST dated 01.12.2023
3. Responses/Amendments made based on the Reviewer's comments
4. IEC Application Form
5. Declaration Form
6. Research Proposal
7. Participant Information Sheet and Consent Form in English and Malayalam
8. Interview schedule 1 in English and Malayalam
9. Interview schedule 2 Oral Health Impact Profile (OHIP) in English and Malayalam
10. CV of Principal Investigator and Guide
11. SRC Recommendation Letter

Revised submission

1. Checklist Form
2. Covering letter addressed to the Chairman, IEC, SCTIMST dated 10.01.2024
3. Responses/Amendments made based on the Reviewer's comments
4. Copy of IEC Recommendation letter dated 09.01.2024
5. Responses/Amendments made based on the Reviewer's comments
6. IEC Application Form
7. Declaration Form
8. Research Proposal
9. Participant Information Sheet and Consent Form in English and Malayalam
10. Interview schedule 1 in English and Malayalam
11. Interview schedule 2 Oral Health Impact Profile (OHIP) in English and Malayalam
12. World Health Organisation oral health Assessment Form for Adults - 2013
13. CV of Principal Investigator and Guide
14. Permission letter from District Medical Officer, Ernakulam

IEC Decision

The IEC approved the conduct of the study in the present form.

The Principal Investigator, while going to the health centers for dental examination, should ensure that the examination is done under all proper aseptic precautions with sterile kits and ensuring standard sterilization practices will be the Principal Investigator's responsibility.

Remarks:

The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

There was no member of the study team / Guide who participated in voting / decision making process. The ethics committee is organized and operated according to the requirements of Good Clinical Practice and the requirements of the Indian Council of Medical Research (ICMR).

Sincerely,



Dr. G. Srinivas
Member Secretary, IEC

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE (IEC)
SCTIMST, THIRUVANANTHAPURAM



ANNEXURE – XI

PERMISSIVE SANCTION FROM DISTRICT MEDICAL OFFICER

ജില്ലാ മെഡിക്കൽ ഓഫീസ് (ആരോഗ്യം) എറണാകുളം
പാർക്ക് അവന്യൂ എറണാകുളം - 682011

☎ 0484 -2360802 ✉ dmohekmooffice@gmail.com

‘ഭരണഭാഷ - മാതൃഭാഷ’

എറണാകുളം ജില്ലാ മെഡിക്കൽ ഓഫീസറുടെ (ആരോഗ്യം) നടപടിക്രമം

വിഷയം : ആരോഗ്യവകുപ്പ് - ജി.മെ.ഒ.(ആ), എറണാകുളം - റിസർച്ച് സ്റ്റഡി നടത്തുന്നതിന് അനുമതി നൽകി - ഉത്തരവ് പുറപ്പെടുവിക്കുന്നു.

പരാമർശം: ഡോ.ബിജു സോമൻ, പ്രൊഫസർ & ഹെഡ്, അച്യുത മേനോൻ സെന്റർ ഫോർ ഹെൽത്ത് സ്റ്റഡീസ്, ശ്രീ ചിത്തിര തിരുനാൾ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഫോർ മെഡിക്കൽ സയൻസസ് & ടെക്നോളജി, തിരുവനന്തപുരം സമർപ്പിച്ച അപേക്ഷ.

ഉത്തരവ് നം. സി4-8662/2023/ജി.മെ.ഒ.(ആ), എറണാകുളം. തീയതി: 27.12.2023

08.12.2023-ാം തീയതിയിൽ എറണാകുളം ജില്ലാ മെഡിക്കൽ ഓഫീസറുടെ ചേമ്പറിൽ കൂടിയ റിസർച്ച് കമ്മിറ്റിയിൽ താങ്കളുടെ അപേക്ഷ പരിശോധിക്കുകയും ആയതിന്റെ അടിസ്ഥാനത്തിൽ പരാമർശ അപേക്ഷ പ്രകാരം താങ്കളുടെ ഇൻസ്റ്റിറ്റ്യൂട്ടിലെ എം.പി.എച്ച്. സ്കോളറായ ഡോ.മെരിൻ വർഗ്ഗീസ്-ന്റെ “Prevalence of periodontal disease and oral health-related quality of life among adults seeking primary care at family health centres in Ernakulam” എന്ന വിഷയവുമായി ബന്ധപ്പെട്ട് റിസർച്ച് സ്റ്റഡിയുടെ ഭാഗമായി താഴെ പറയുന്ന ആശുപത്രികളിൽ വരുന്ന രോഗികളുടെ സമ്മതത്തോടെ ഇന്റർവ്യൂ ചെയ്ത് വിവരങ്ങൾ ശേഖരിക്കുന്നതിനുള്ള അനുമതി നൽകി ഉത്തരവാകുന്നു.

ടി വിദ്യാർത്ഥി അതാത് സ്ഥാപനമേധാവിയുടെ നിർദ്ദേശപ്രകാരം, സ്ഥാപനത്തിന്റെ പ്രവർത്തനത്തിന് തടസ്സം വരാതെയും, താഴെ പറയുന്ന നിബന്ധനകൾ പാലിച്ചും ഡാറ്റാ കളക്ഷൻ നടത്തേണ്ടതാണ്.

- ശേഖരിക്കുന്ന ഡാറ്റാകൾ പഠനാവശ്യത്തിനല്ലാതെ മറ്റ് യാതൊരാവശ്യങ്ങൾക്കും കൈമാറാനോ, ദുരുപയോഗം ചെയ്യുവാനോ പാടുള്ളതല്ല.

- പഠനത്തിൽ പങ്കെടുക്കുന്നതിന് വ്യക്തികളെയോ/ രോഗികളെയോ നിർബന്ധിക്കുവാനോ, പങ്കെടുക്കുന്നവർക്ക് ബുദ്ധിമുട്ടുകൾ ഉണ്ടാകാനോ പാടുള്ളതല്ല.
- രോഗികളിൽ നിന്നും കൺസെന്റ് ഫോം എഴുതി വാങ്ങേണ്ടതാണ്.
- ശേഖരിക്കുന്ന വിവരങ്ങൾ ആരോഗ്യവകുപ്പ് അധികൃതരുടെ അനുവാദമില്ലാതെ പ്രസിദ്ധീകരിക്കുവാനോ പരസ്യപ്പെടുത്തുവാനോ പാടുള്ളതല്ല.
- ബന്ധപ്പെട്ട രോഗികളുടെ സ്വകാര്യതയെ ബാധിക്കുന്ന തരത്തിലും, ബുദ്ധിമുട്ടുണ്ടാക്കുന്ന വിധത്തിലും വിവരങ്ങൾ ശേഖരിക്കുവാൻ പാടുള്ളതല്ല.

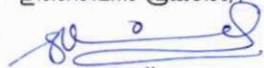
ഒപ്പ്/-
ഡോ . സക്കീന.കെ..
ജില്ലാ മെഡിക്കൽ ഓഫീസർ (ആരോഗ്യം)
എറണാകുളം

ഡോ.ബിജു സോമൻ,
പ്രൊഫസർ & ഹെഡ്,
അച്യുത മേനോൻ സെന്റർ ഫോർ ഹെൽത്ത് സ്റ്റഡീസ്,
ശ്രീ ചിത്തിര തിരുനാൾ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഫോർ മെഡിക്കൽ സയൻസസ് & ടെക്നോളജി,
തിരുവനന്തപുരം

പകർപ്പ്:

1. ബന്ധപ്പെട്ട സ്ഥാപനമേധാവികൾക്ക്.
2. ഫയൽ/കരുതൽ ഫയൽ

// ഉത്തരവിൻ പ്രകാരം //


സുപ്രഭ്

