

Knowledge and Awareness of Periodontal Disease Among Patients: A Pilot Study on Malaysian Population

Vardhan AS^{1*}, Krishnan A², Kumar DY², Sfiya A¹, HakimA¹

Abstract

Periodontal disease is a common chronic inflammatory condition that affects the supporting structures of the teeth and can significantly impact oral and systemic health. This study aimed to assess the knowledge and awareness of periodontal disease among patients attending the Lincoln University College Dental Clinic, Malaysia. A descriptive cross-sectional study was conducted among 112 adult patients using a structured self-administered questionnaire distributed through Google Forms. The questionnaire collected information on sociodemographic characteristics, oral hygiene practices, knowledge of periodontal disease, and awareness of the relationship between periodontal and systemic health. Data were analyzed using IBM SPSS Statistics version 25. Descriptive statistics were used to summarize participant characteristics and response patterns, while Chi-square tests were employed to evaluate associations between demographic variables and periodontal disease awareness. The findings revealed that most participants demonstrated a satisfactory level of knowledge regarding the causes, signs, and prevention of periodontal disease. A high proportion recognized the importance of tooth brushing and regular dental visits in maintaining periodontal health. However, gaps were identified in preventive practices, particularly regarding flossing, professional scaling, and awareness of the association between periodontal disease and systemic conditions. Significant associations were observed between awareness levels and selected demographic factors, including age and employment status. The study highlights the need for continuous oral health education and targeted awareness programs to improve preventive behaviors and promote better periodontal health among dental patients.

Keywords: Periodontal disease, gingivitis, oral hygiene, awareness, knowledge, dental patients, oral health
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Affiliation

Dr. Anubhava Vardhan Shawarma

Department of Restorative Dentistry,
School of Dentistry, Lincoln University College,
Petaling Jaya, Selangor, Malaysia.

Dr. Anand Krishnan

Department of Oral Diagnostic and Surgical Sciences,
School of Dentistry, Lincoln University College,
Petaling Jaya, Selangor, Malaysia

Dr. Dinesh Kumar Yadav

Department of Oral Diagnostic and Surgical Sciences,
School of Dentistry, Lincoln University College, Petaling Jaya,
Selangor, Malaysia

Dr. Alia Sfiya

Department of Restorative Dentistry,
School of Dentistry, Lincoln University College,
Petaling Jaya, Selangor, Malaysia.

Dr. Amirul Hakim

Department of Restorative Dentistry,
School of Dentistry Lincoln University College,
Petaling Jaya, Selangor, Malaysia.

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Address of Correspondence:

Assoc. Prof. Dr. Anubhava Vardhan Shawarma
Department of Restorative Dentistry
School of Dentistry Lincoln University College, Petaling
Jaya, Selangor, Malaysia.
Email: anubhava@lincoln.edu.my

Introduction

As the main site of entry into the human body, the oral cavity often reflects systemic health issues. Adequate nutrition, efficient communication, increased self-confidence, and a higher quality of life are all influenced by good oral health.^{1,2} Periodontal disease continues to be one of the most common chronic oral illnesses and a major global public health concern.^{3,4} Inflammatory disorders affecting the gingiva, periodontal ligament, cementum, and alveolar bone are together referred to as periodontal disease.⁴

Gingivitis is the initial and reversible stage of periodontal disease and primarily results from the accumulation of bacterial dental plaque biofilm.^{5,6} Clinically, gingivitis is characterized by gingival redness, swelling, bleeding during toothbrushing or probing, and halitosis.⁵ Gingivitis can develop into periodontitis, an irreversible disease marked by clinical attachment loss, alveolar bone degradation, periodontal pocket formation, tooth movement, and ultimately tooth loss, if treatment is not received.^{3,4} The host immune-inflammatory response and pathogenic bacterial biofilm interact intricately in the pathophysiology of periodontal disease. *Porphyromonas gingivalis* and *Treponema denticola* are examples of periodontal infections that cause inflammation, response and pathogenic bacterial biofilm interact intricately in the pathophysiology of periodontal disease. *Porphyromonas gingivalis* and *Treponema denticola* are examples of periodontal infections that cause

inflammation, which in turn causes connective tissue degradation and alveolar bone resorption.⁴ In addition to poor oral hygiene, a number of known risk factors—such as smoking, diabetes mellitus, ageing, psychological stress, poor diet, low socioeconomic position, and restricted access to dental care contribute to the onset and advancement of periodontal disease.^{3,7}

There is mounting evidence that periodontal disease is closely linked to systemic disorders such as diabetes mellitus, cardiovascular disease, chronic respiratory diseases, poor pregnancy outcomes, and chronic kidney disease.³ As a result, preventing and treating periodontal disease early on is crucial for maintaining both dental and general systemic health.^{1,3} The prevention of periodontal disease is mostly determined by knowledge and awareness. Effective oral hygiene practices, such as frequent toothbrushing, interdental cleaning, and routine dental visits, are more likely to be practiced by those who possess sufficient knowledge about the causes, symptoms, risk factors, and preventative strategies of periodontal disease.⁸ However, a number of studies have shown that awareness by itself does not always lead to suitable preventative measures, suggesting a disconnect between knowledge and real oral health behaviour.^{8,9} Surveys conducted in different populations have also revealed insufficient knowledge and awareness regarding periodontal diseases despite relatively acceptable oral hygiene practices.^{10,11,12}

In Malaysia, periodontal disease continues to affect a substantial proportion of the adult population despite improvements in oral healthcare services.² However, limited studies have specifically investigated the level of periodontal disease knowledge and awareness among patients attending university dental clinics. Therefore, the present study was conducted to assess the level of knowledge and awareness regarding periodontal disease among patients attending the Lincoln University College Dental Clinic and to determine the demographic factors associated with periodontal health awareness.

Methodology

Study Design and Setting

This descriptive cross-sectional study was conducted among patients attending the Lincoln University College Dental Clinic, Malaysia, to assess their knowledge and awareness regarding periodontal disease.

Study Population and Sampling

Adult patients who visited the dental clinic during the study period and were at least eighteen years old made up the study population. Convenience sampling was used to find participants. Participants had to be willing to fill out the questionnaire and give informed consent. The study excluded

patients under the age of 18 and those with medical, cognitive, or communicative disorders that would make it difficult for them to finish the questionnaire. There were 112 participants in all.

Data Collection Instrument

A systematic self-administered questionnaire that was modified from earlier validated studies on oral health knowledge and periodontal awareness was used to gather data. Google Forms was used to disseminate the survey electronically. The questionnaire was examined before it was sent to make sure it was clear and pertinent to the study's goals.

The questionnaire comprised four sections:

Age, gender, educational attainment, and work status are examples of sociodemographic data. oral hygiene habits, evaluating participants' regular oral health habits. Understanding of periodontal disease, including its causes, symptoms, indicators, and risk factors. Participants' knowledge of the connection between periodontal disease and systemic illnesses including diabetes and cardiovascular disease was assessed.

Data Collection Procedure

After learning about the goals and purpose of the study, participants were asked to fill out the online questionnaire. Before the survey started, informed consent was electronically sought, and participation was entirely voluntary. To protect participant privacy, all answers were gathered anonymously.

Data Analysis

After being informed about the goals and purpose of the study, participants were asked to fill out the online survey. Before the survey began, informed consent was electronically sought, and participation was entirely voluntary. To protect participant privacy, all replies were gathered anonymously.

Results

Demographic Characteristics

The questionnaire was completed by 112 individuals in total. With 67.0% (n = 75) of the responders, women made up the majority, while men made up 30.4% (n = 34). A tiny percentage said they would rather not reveal their gender. The majority of participants (65.2%) were between the ages of 18 and 26, followed by those over 35 (17.9%) and those between the ages of 27 and 35 (17.0%). In terms of education, 17.0% had finished high school, 8.0% had postgraduate degrees, and 75.0% had bachelor's degrees. The largest employment

category was made up of students (59.8%), followed by those who did not work in the healthcare industry (25.0%). Table 1 and Figure 1 displayed all of the data.

Table 1: Demographic Characteristics of Participants (N = 112)

Variable	Categories	N (%)
Gender	Female (75; 67.0%), Male (34; 30.4%), Prefer not to say (3; 2.7%)	112
Age group	18–26 years (73; 65.2%), 27–35 years (19; 17.0%), >35 years (20; 17.9%)	112
Education level	Bachelor (84; 75.0%), High school (19; 17.0%), Higher education (9; 8.0%)	112
Employment status	Student (67; 59.8%), Outside healthcare (28; 25.0%), Retired (10; 8.9%), Healthcare sector (5; 4.5%), Unemployed (2; 1.8%)	112

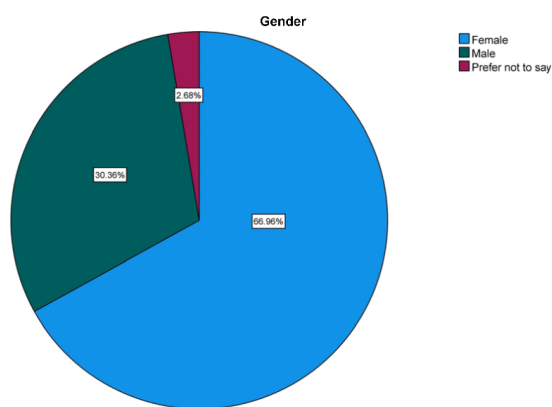


Figure 1(a)

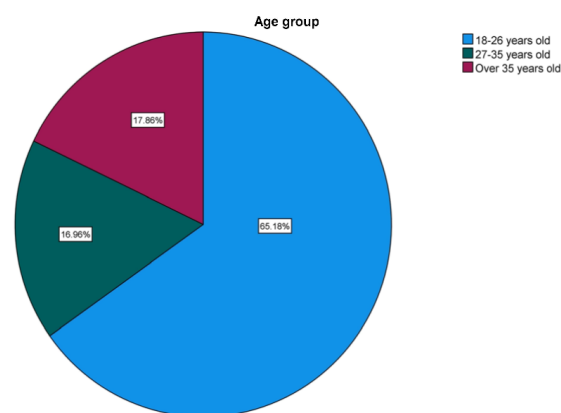


Figure 1(b)

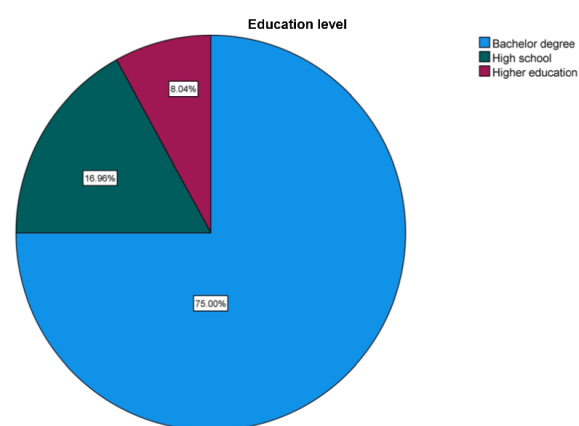


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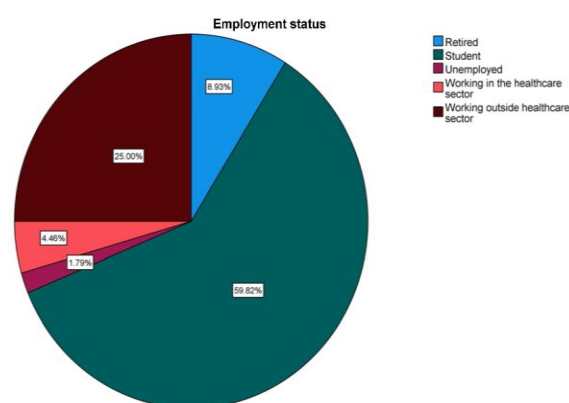


Figure: 1(d)

Oral Hygiene Practices

The majority of participants (99.1%) reported brushing their teeth every day. Only 11.6% of respondents specifically mentioned brushing twice a day on a regular basis. The majority of respondents (60.7%) changed their toothbrushes

every three months, while some did so every six months or whenever the bristles started to fray. After vertical brushing, roll stroke brushing was the most frequently used technique (55.4%). Some respondents continued to brush horizontally or were ignorant of the best brushing methods. While many participants only rarely used dental floss, only 29.5% of respondents utilised it on a regular basis. In terms of mouthwash use, 35.7% never used it, while others used it sporadically or in accordance with a dental prescription. 35.7% of people went to the dentist every six months, compared to 45.5% who went once a year. All the data were displayed in Figure 2.

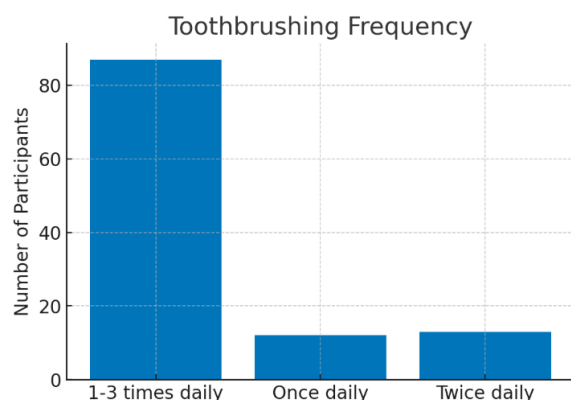


Figure: 2(a)

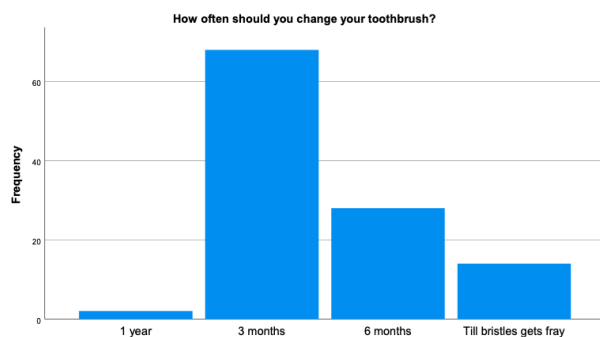


Figure: 2(b)

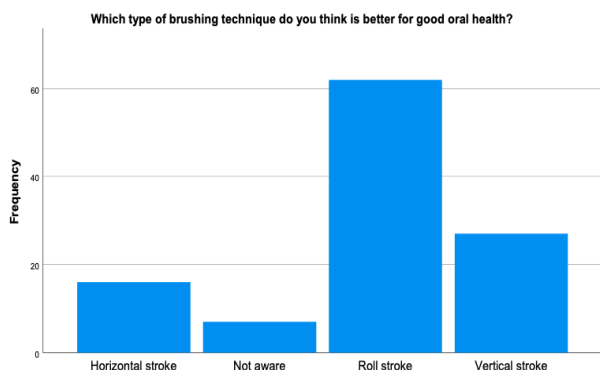


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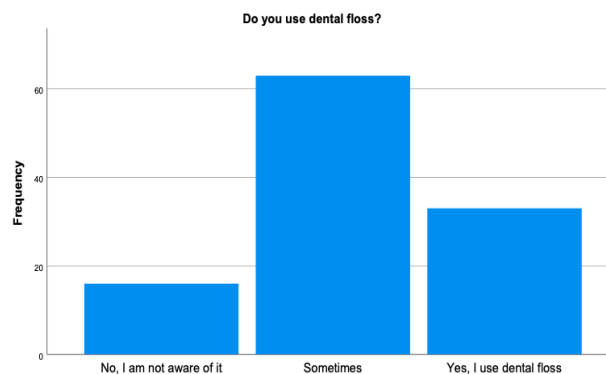


Figure: 2(d)

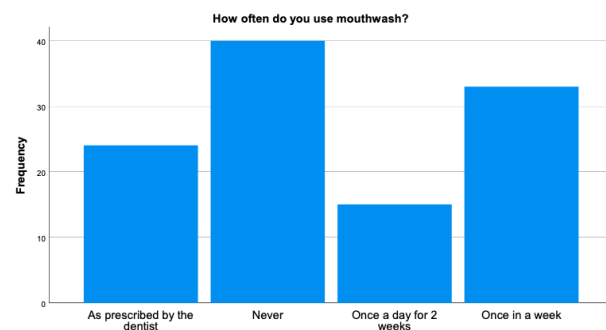


Figure: 2(e)

Knowledge and Awareness of Periodontal Disease

Most participants showed a high level of awareness about dental hygiene and periodontal disease. Poor dental hygiene was correctly identified by the majority of respondents as the most prevalent cause of bleeding gums (52.7%), loose teeth (70.5%), and bad breath (79.5%). The vast majority (87.5%) acknowledged that one of the main causes of gingival recession was poor brushing technique. Additionally, the majority of respondents thought that: Periodontal disease increases after age 35 (69.6%), poor dental hygiene impacts general health (87.5%), tea and coffee induce tooth staining (83.0%), and tooth sensitivity may be cured (73.2%). Figure 3 displayed all of the data.

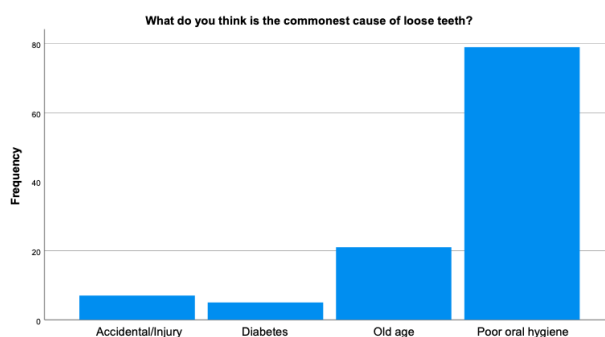


Figure: 3 (a)

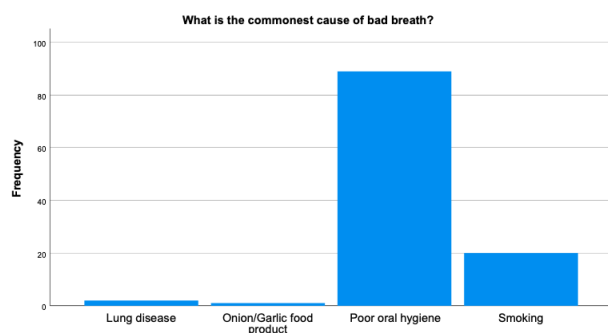


Figure: 3(b)

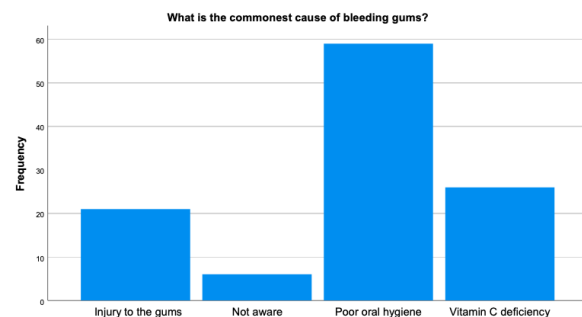


Figure: 3(c)

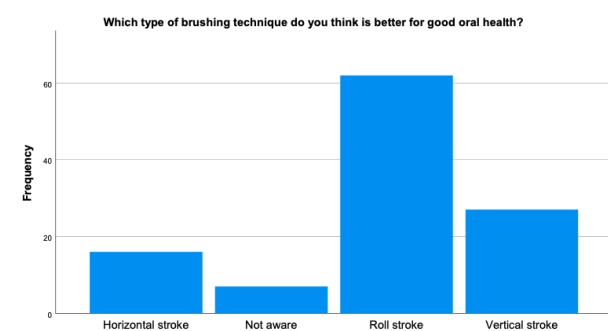


Figure: 3(d)

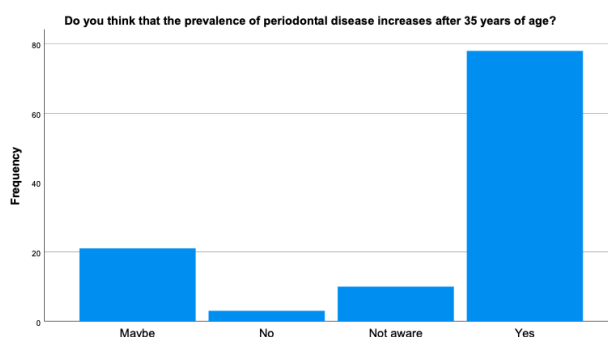


Figure: 3 (e)

Statistical Associations

Gender and knowledge or awareness ratings did not significantly correlate ($p = 0.199$). Age group and knowledge scores were shown to be statistically significantly correlated ($p = 0.005$). When compared to older responses, younger participants showed greater awareness. There was a nearly

significant correlation between awareness and educational level ($p = 0.066$). In general, those with higher levels of education showed greater awareness of oral health. Knowledge scores were statistically significantly correlated with employment status ($p < 0.001$). Students and healthcare professionals showed the highest levels of awareness.

Correlation Analysis

Knowledge scores showed a negative connection with age, suggesting that awareness decreased with age. There was a slight positive connection between oral hygiene behaviours and educational attainment. Knowledge and actual oral hygiene behaviour did not significantly correlate, indicating that awareness does not always convert into preventive practice.

Discussion

This study assessed patients' awareness and understanding of periodontal disease at Lincoln University College Dental Clinic. Overall, respondents' knowledge of periodontal disease and oral health was comparatively high. The majority of participants reported cleaning their teeth every day, indicating a generally good attitude toward oral hygiene. Only a small portion, however, reported regularly brushing twice a day in accordance with global guidelines. Similar results have been documented in earlier research involving people who were aware of the importance of brushing their teeth but did not adhere to the recommended frequency. The majority of participants showed a reasonable level of awareness regarding toothbrush maintenance by replacing their brushes every three months. However, many continued using toothbrushes for longer than was advised, which might have decreased cleaning effectiveness.

Limited interdental cleaning techniques were also found in the study. Just around one-third of individuals said they flossed on a regular basis. This result is in line with research done in other populations where flossing is still one of the least common oral care practices. Poor compliance may be caused by inadequate training, cost, inconvenience, and a lack of understanding about flossing. The majority of participants identified poor dental hygiene as the main cause of halitosis, loose teeth, and bleeding gums. This indicates a reasonable understanding of the aetiology of periodontal disease. Furthermore, a sizable majority recognised the connection between oral and systemic health, which reflects the public's increasing understanding of these relationships. Nonetheless, a few myths were found. Rather than plaque buildup, a percentage of responders linked bleeding gums

mostly to vitamin C insufficiency. Early diagnosis and treatment may be delayed by such beliefs.

According to the survey, younger responders were more aware than older ones. Younger individuals might be more exposed to oral health information via digital platforms, social media, and educational institutions. Previous research has shown similar results, with younger persons exhibiting more oral health knowledge. Another important factor influencing awareness was employment status. Students and healthcare professionals scored higher on knowledge tests than people who were unemployed or retired. This could be linked to increased access to healthcare resources, educational opportunities, and health information. Participants with greater educational credentials often showed improved awareness, even if education level did not reach statistical significance. It is commonly acknowledged that educational attainment plays a significant role in determining health literacy and preventive behaviour.

It's interesting to see that gender and awareness did not significantly correlate. This result implies that men and women may now have comparable access to oral health information. The limited correlation between awareness and real oral hygiene practices was one of the study's key findings. Even though many respondents were aware of periodontal disease, they did not follow recommended preventive practices including flossing and routine dental checkups. This shows that changing one's behaviour requires more than just awareness. Thus, in addition to increasing awareness, oral health promotion initiatives should promote motivation and long-term behavioural change.

Conclusion

This study evaluated the knowledge and awareness of periodontal disease among patients attending Lincoln University College Dental Clinic. Overall, participants demonstrated good awareness of periodontal disease causes, oral hygiene practices, and the importance of professional dental care. However, preventive behaviors such as regular flossing, mouthwash use, and professional cleaning attendance were relatively inadequate. Age and employment status were significantly associated with awareness levels, while gender showed no significant influence. These findings emphasize the need for enhanced oral health education programs to improve both knowledge and preventive oral health practices.

Ethical Approval: The study was conducted in accordance with the ethical approval obtained by ethical committee Lincoln University College, Malaysia (LUCFD2024RPA22).

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