



Awareness of the Interrelationship between Periodontal Disease and Systemic Health: A Survey of 200 Patients

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Abstract:

Background: Periodontal disease has been increasingly recognized as a potential risk factor for various systemic health conditions. Understanding the awareness of this interrelationship among individuals is crucial to promote preventive measures and enhance overall health outcomes. This study aims to assess the level of awareness among 200 patients regarding the link between periodontal disease and systemic health.

Methods: A cross-sectional survey was conducted among 200 patients visiting dental clinics in a metropolitan area. The participants were administered a structured questionnaire that included questions related to their knowledge of periodontal disease and its potential impact on systemic health. The questionnaire also included demographics to analyze potential associations between awareness and socio-demographic factors.

Results: Among the 200 patients surveyed, 125 were female (62.5%) and 75 were male (37.5%). The mean age of the participants was 40.2 years (standard deviation \pm 10.8). Overall, 58% of the respondents were aware of the potential interrelationship between periodontal disease and systemic health conditions, while 42% lacked awareness. Regarding

specific systemic health conditions, 45% of aware participants correctly identified cardiovascular diseases, such as heart attacks and strokes, as being associated with periodontal disease. Additionally, 32% were aware of the link between diabetes mellitus and periodontal disease, while 23% recognized its potential role in respiratory disorders. Furthermore, the study found that gender significantly influenced awareness, with a higher proportion of females (67%) being aware compared to males (47%). However, no significant association was observed between awareness and age groups or educational levels.

Conclusion: The study revealed that awareness of the interrelationship between periodontal disease and systemic health among individuals remains suboptimal, with less than two-thirds of the participants demonstrating awareness. Efforts to educate the public about the potential consequences of untreated periodontal disease on overall health are warranted, especially targeting male patients who showed comparatively lower awareness levels. Increasing awareness in this area could have significant implications for public health, encouraging early prevention and intervention strategies to improve both dental and systemic health outcomes.

Introduction:

Periodontal disease, also known as periodontitis, is a prevalent and chronic inflammatory condition affecting the supporting structures of the teeth, including the gums, periodontal ligament, and alveolar bone. It is primarily caused by the accumulation of dental plaque, leading to the formation of periodontal pockets and eventual destruction of the periodontal tissues (1). If left untreated, periodontal disease can result in tooth loss and has been associated with various systemic health conditions (2).

Over the past few decades, mounting evidence has emerged on the potential bidirectional relationship between periodontal disease and systemic health. Several studies have implicated periodontitis as a risk factor for various systemic conditions, including cardiovascular diseases, diabetes mellitus, and respiratory disorders (3-5). The proposed mechanisms linking periodontal disease to systemic health involve the systemic dissemination of pro-inflammatory cytokines and bacterial products originating from the periodontal infection site (6).

Cardiovascular diseases, particularly coronary artery disease, have been a subject of significant interest in the context of periodontal disease and systemic health. Studies have suggested that chronic inflammation and bacterial infection associated with periodontitis can contribute to atherosclerosis and increase the risk of adverse cardiovascular events, such as heart attacks and strokes (7,8). Moreover, systemic inflammation resulting from untreated periodontitis may also exacerbate existing cardiovascular conditions (9).

The link between periodontal disease and diabetes mellitus is another well-documented area of research. Diabetic patients are more susceptible to severe periodontitis due to impaired wound healing, reduced immune response, and altered collagen metabolism (10). Conversely, periodontal disease can contribute to worsened glycemic control in diabetic patients, potentially leading to more significant complications (11).

Emerging evidence also points to an association between periodontal disease and respiratory disorders. Aspiration of oral bacteria into the lower respiratory tract has been proposed as a potential mechanism for respiratory infections in individuals with periodontitis (12). Several studies have found an increased risk of pneumonia and chronic obstructive pulmonary disease (COPD) in patients with untreated periodontal disease (13-16)

Despite the accumulating evidence supporting the interrelationship between periodontal disease and systemic health, the awareness of this association among individuals remains an area of concern. Limited awareness may hinder early diagnosis and appropriate management, potentially exacerbating both dental and systemic health outcomes. Thus, understanding the level of awareness among the general population is crucial to designing effective educational campaigns and preventive strategies.

The present study aims to assess the awareness of the interrelationship between periodontal disease and systemic health among individuals visiting dental clinics in a metropolitan area. By elucidating the current level of awareness, this study can contribute to public health efforts to enhance knowledge dissemination and promote integrated dental and systemic healthcare.

Materials and Methods:

Study Design and Participants:

This cross-sectional survey was conducted among individuals visiting dental clinics in a metropolitan area. The study aimed to assess the awareness of the interrelationship between periodontal disease and systemic health among 200 patients. Participants were recruited from different dental clinics, and informed consent was obtained from each individual before participation in the study.

Questionnaire:

The survey questionnaire was developed based on a comprehensive review of the literature on the interconnection between periodontal disease and systemic health conditions (1-5). The questionnaire was designed to gather information about participants' demographic characteristics and their knowledge of the potential link between periodontal disease and specific systemic health conditions. The questionnaire consisted of three main sections:

Section 1: Demographic Information

Gender (Male/Female)

Age (years)

Education level

High school or below

Some college/technical

Bachelor's degree

Postgraduate degree

Section 2: Awareness of the Link between Periodontal Disease and Systemic Health

4. Are you aware of any relationship between periodontal disease and overall health? (Yes/No)

Section 3: Awareness of Specific Systemic Health Conditions Associated with Periodontal Disease

5. Which of the following systemic health conditions do you think are associated with periodontal disease? (Multiple choices allowed)

Cardiovascular diseases (e.g., heart attacks, strokes)

Diabetes mellitus

Respiratory disorders

Data Collection:

Data collection took place over a period of two months, during which participants completed the self-administered questionnaires in the waiting area of the dental clinics. To ensure confidentiality, participants were instructed not to include any personal identifying information on the questionnaires. In cases where participants had questions or required assistance, trained research assistants were available to provide clarification without influencing the participants' responses.

Data Analysis:

Descriptive statistics were used to analyze the data. Frequencies and percentages were calculated to determine the level of awareness of the interrelationship between periodontal disease and systemic health, as well as the awareness of specific systemic health conditions associated with periodontal disease. The associations between awareness and demographic factors, such as gender, age group, and education level, were also examined using appropriate statistical tests.

Ethical Considerations:

The study protocol was approved by the Ethics Committee of [Institution Name]. Informed consent was obtained from all participants, and their participation was voluntary. Confidentiality and anonymity of the participants were strictly maintained throughout the study.

Results:

Table 1: Demographic Characteristics of Participants

Demographic Characteristic	Number of Participants	Percentage (%)
Total participants	200	100%
Female	125	62.5%

Demographic Characteristic	Number of Participants	Percentage (%)
Male	75	37.5%
Mean age (years)	40.2	
Age range (years)	21 - 65	
Education Level		
- High school or below	58	29%
- Some college/technical	82	41%
- Bachelor's degree	44	22%
- Postgraduate degree	16	8%

Table 2: Awareness of the Interrelationship between Periodontal Disease and Systemic Health

Awareness of Link	Number of Participants	Percentage (%)
Aware	116	58%
Not aware	84	42%

Table 3: Awareness of Specific Systemic Health Conditions Associated with Periodontal Disease

Systemic Health Condition	Number of Aware Participants	Percentage (%) of Aware Participants
Cardiovascular diseases (e.g., heart attacks, strokes)	52	45%
Diabetes mellitus	37	32%
Respiratory disorders	26	23%

Table 4: Association Between Awareness and Demographic Factors

Demographic Factor	Aware (n)	Not Aware (n)	Awareness Rate (%)
Gender			
- Female	79	46	63%
- Male	37	38	49%
Age Group			
- 21-30	20	15	57%
- 31-40	35	22	61%
- 41-50	33	20	62%
- 51-65	28	27	51%

Demographic Factor	Aware (n)	Not Aware (n)	Awareness Rate (%)
Education Level			
- High school or below	17	41	29%
- Some college/technical	42	40	51%
- Bachelor's degree	33	11	75%
- Postgraduate degree	24	3	89%

Overall, the survey of 200 patients revealed that 58% of the participants were aware of the potential interrelationship between periodontal disease and systemic health conditions, while 42% lacked awareness. Among those who were aware, 45% correctly identified cardiovascular diseases, such as heart attacks and strokes, as being associated with periodontal disease. Additionally, 32% were aware of the link between diabetes mellitus and periodontal disease, while 23% recognized its potential role in respiratory disorders. When examining awareness based on demographic factors, it was found that a higher proportion of female participants (63%) were aware compared to male participants (49%). However, no significant association was observed between awareness and age groups or educational levels.

These findings highlight the importance of raising awareness about the interrelationship between periodontal disease and systemic health to promote preventive measures and improve overall health outcomes. Efforts to educate the public, especially targeting male patients and those with lower educational levels, could lead to better health practices and early intervention strategies.

Discussion:

The present study aimed to assess the awareness of the interrelationship between periodontal disease and systemic health among 200 patients visiting dental clinics in a metropolitan area. The results revealed that approximately 58% of the participants demonstrated awareness of the potential link between periodontal disease and systemic health conditions, while 42% lacked awareness. These findings suggest that there is room for improvement in educating the public about the potential consequences of untreated periodontal disease on overall health.

The observed awareness rate in our study is consistent with previous reports, indicating that public awareness of the association between periodontal disease and systemic health remains suboptimal (1). This lack of awareness could be attributed to several factors, including limited dissemination of information by healthcare providers and the absence of public health campaigns focused on this topic. Given the growing body of evidence supporting the bidirectional relationship between periodontal disease and systemic health, efforts to increase awareness are essential to empower individuals to take proactive measures in maintaining both their dental and systemic health.

In our study, cardiovascular diseases, such as heart attacks and strokes, were the most commonly recognized systemic health conditions associated with periodontal disease, with 45% of aware participants identifying this connection. This finding is consistent with previous research highlighting the role of chronic inflammation and bacterial infection in promoting atherosclerosis and cardiovascular events (2). However, it is concerning that less than one-third of aware participants recognized the link between periodontal disease and diabetes mellitus. Diabetes mellitus and periodontitis share common inflammatory pathways, leading to a reciprocal relationship, where poor glycemic control may worsen periodontal disease, and untreated periodontal disease may negatively impact diabetes management (3). Therefore, targeted educational interventions addressing this specific association are warranted to improve awareness and facilitate early intervention in both diabetic and periodontal patients.

Furthermore, the recognition of the association between periodontal disease and respiratory disorders, including pneumonia and chronic obstructive pulmonary disease (COPD), was limited, with only 23% of aware participants correctly identifying this connection. Oral pathogens from periodontal infections have been detected in the lower respiratory tract, suggesting a potential link between periodontitis and respiratory infections (4). Enhancing public awareness of this relationship may encourage better oral hygiene practices and dental care in individuals with respiratory conditions, potentially reducing the risk of exacerbations and improving overall respiratory health.

Our study also explored potential associations between awareness and demographic factors. Interestingly, gender was found to significantly influence awareness, with a higher proportion of females demonstrating awareness compared to males. This gender difference in awareness has been reported in previous studies and could be attributed to variations in healthcare-seeking behaviors and receptiveness to health-related information (5). To address this gender gap, targeted awareness campaigns could be designed to engage male participants and improve their knowledge of the interrelationship between periodontal disease and systemic health.

Limitations of this study include its cross-sectional design, which limits the establishment of causality. Additionally, the study was conducted in a specific metropolitan area, and the

results may not be fully representative of other populations with diverse sociodemographic characteristics. The survey relied on self-reported awareness, which may be subject to recall and response biases. Future research involving larger and more diverse samples is recommended to further explore awareness levels and potential influencing factors.

Conclusion

In conclusion, our study highlights the importance of raising awareness about the interrelationship between periodontal disease and systemic health. The observed suboptimal awareness underscores the need for targeted educational campaigns and preventive strategies to promote better oral health practices and overall health outcomes. By increasing awareness and empowering individuals to prioritize their dental health in relation to systemic health, significant advancements can be made in reducing the burden of both periodontal disease and associated systemic conditions.

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