

Original Research

Impact Of Smoking And Other Lifestyle Factors On Periodontal Health

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Abstract:

Objective: This research aimed to investigate the relationship connecting smoking and periodontal health effects, as well as the influence of other lifestyle factors, in patients coming to a tertiary care.

Methods: A cross-sectional research was conducted involving 200 participants aged 25 to 65 years. Periodontal health was assessed using standardized clinical factors, including “clinical attachment loss [CAL]”, probing depth, and “bleeding on probing [BOP]”. Lifestyle aspects for instance smoking habits, dietary habits, oral sanitation practices, and systemic health conditions were recorded through structured interviews and questionnaires.

Results: Smokers exhibited significantly deeper probing depths, more CAL, and a higher prevalence of BOP compared to non-smokers ($p < 0.001$). Moreover, smokers with a longer duration of smoking and higher daily consumption demonstrated more pronounced periodontal destruction.

Conclusion: Smoking became a significant risk factor for periodontal disease, characterized by increased disease severity and inflammation compared to non-smokers. Public health interventions targeting smoking cessation and promotion of healthy lifestyle behaviors are warranted to mitigate the burden of periodontal disease and improve overall oral health outcomes.

Keywords: periodontal health, smoking, lifestyle factors, oral hygiene, dietary habits, periodontal disease, tertiary care center, cross-sectional research

Introduction

Lifestyle choices are one of several variables that affect periodontal health, which is the condition of the supporting tissues around the teeth. Among these, smoking is one that is particularly important for the onset and advancement of periodontal disease. Smokers have a greater prevalence and severity of periodontitis than non-smokers, highlighting the detrimental effects of smoking on dental health [1-3]. Apart from smoking, several lifestyle choices, including food choices, dental hygiene routines, and underlying medical disorders, are critical in determining whether periodontal health is preserved or compromised. Bad eating practices, which are defined by a high sugar consumption and a poor nutritional content, can worsen inflammation, and make it more difficult for the body to fight off periodontal infections. In the same way, poor oral hygiene habits, such as sporadic brushing and flossing, cause plaque and calculus to build up and cause gingival irritation and periodontal disease [4-6]. Understanding the intricate interplay between lifestyle factors and periodontal health is essential for effective prevention and management strategies.

Material and methods:

Cross-sectional research was accomplished involving 200 participants aged 25 to 65 years. Periodontal health was assessed using standardized clinical parameters, involving probing depth, CAL, and BOP. Lifestyle factors such as smoking habits, dietary habits, oral hygiene practices, and systemic health conditions were recorded through structured interviews and validated questionnaires. Participants were categorized into smoker and non-smoker groups based on self-reported smoking status. Statistical analyses, including chi-square tests and logistic

regression models, were performed to evaluate the association between lifestyle factors and periodontal health outcomes, adjusting for potential confounders such as age, gender, and systemic health conditions. Prior to data collection, informed permission was sought from all participants and ethical approval was received from the institutional review board.

Results

There were 100 smokers and 100 non-smokers included in the investigation. The mean age of smokers was 45.6 years (± 8.2), while non-smokers had a slightly higher mean age of 47.3 years (± 7.5), although this variance was not statistically significant ($p = 0.217$). Gender distribution did not differ significantly between the two groups, with a male predominance observed in both smokers (60%) and non-smokers (55%). Regarding education level, there were no significant variances observed between smokers and non-smokers, with approximately 30% of smokers and 25% of non-smokers having a high school education, 45% of smokers and 50% of non-smokers having a college education, and 25% of both groups having a university education. Table 1 Smokers exhibited significantly deeper probing depths ($4.2 \text{ mm} \pm 0.9$) compared to non-smokers ($3.0 \text{ mm} \pm 0.6$), with a statistically significant variance ($p < 0.001$). Similarly, smokers demonstrated greater CAL ($2.5 \text{ mm} \pm 0.7$) compared to non-smokers ($1.8 \text{ mm} \pm 0.5$), with a significant variance noted ($p < 0.001$). Moreover, the prevalence of BOP was substantially higher among smokers (65%) compared to non-smokers (40%), indicating a greater degree of gingival inflammation in the smoking group ($p < 0.001$). These conclusions underscore the adverse impact of smoking on periodontal health, characterized by increased disease severity and inflammation compared to non-smokers. Table 2

Tables

Table 1: Demographic Characteristics of research Participants

Variable	Smokers (n=100)	Non-Smokers (n=100)	p
Age (years)	45.6 \pm 8.2	47.3 \pm 7.5	0.217
Gender (Male/Female)	60/40	55/45	0.452
Education Level			
High School	30%	25%	0.321
College	45%	50%	0.287
University	25%	25%	0.879

Table 2: Periodontal Health Parameters by Smoking Status

Variable	Smokers (n=100)	Non-Smokers (n=100)	p
Probing Depth (mm)	4.2 \pm 0.9	3.0 \pm 0.6	<0.001
CAL (mm)	2.5 \pm 0.7	1.8 \pm 0.5	<0.001
BOP (%)	65%	40%	<0.001

Discussion

The research explored the impact of smoking and other lifestyle factors on periodontal health in subjects at a tertiary care center. Significant associations were found between smoking and adverse periodontal outcomes, including increased probing depths, greater CAL, and a higher prevalence of BOP. Smokers exhibited more advanced periodontal disease, suggesting a direct link between smoking and periodontal destruction. The deleterious effects of smoking on periodontal tissues, such as impaired immune response, decreased collagen synthesis, and compromised vascular supply, contribute to increased susceptibility to periodontal disease and delayed wound healing [1-3]. Furthermore, smokers demonstrated a higher occurrence of BOP, indicating greater gingival inflammation and vascular fragility. The inflammatory response induced by smoking exacerbates periodontal tissue breakdown, creating a favorable environment for the proliferation of periodontal pathogens. Findings revealed a dose-response relationship between smoking intensity and the severity of periodontal disease, emphasizing the cumulative effect of smoking over time [3-6]. The research identified poor oral hygiene practices and unhealthy dietary habits as contributing factors to compromised periodontal health, though their impact was less pronounced than smoking. The association between periodontal disease and smoking is attributed to various mechanisms, including altered host response, impaired wound healing, and dysbiosis of the oral microbiome. Smoking-induced immune function alterations compromise host defenses against periodontal pathogens, leading to unchecked bacterial proliferation and tissue destruction [4-7]. Comparisons with existing literature supported the consistency of findings, aligning with previous studies showing a strong connection between periodontal disease and smoking. Epidemiological studies reported a higher prevalence and severity of periodontitis among smokers, with a dose-response relationship observed in longitudinal studies [6-8]. Despite robust evidence, the research has limitations, such as the cross-sectional design precluding causal relationships. Smoking associations may be influenced by unaccounted confounding variables. Self-reported smoking status introduces potential recall and social desirability biases. Generalizability

is limited to the tertiary care centre's patient population. Consideration of these limitations is crucial when interpreting the research's findings.

Conclusion

To sum up, the research provides more proof of the damaging effects of smoking on periodontal health, as seen by deeper probing depths, more CAL, and more bleeding after probing. The importance of smoking cessation therapies in preventing and treating periodontal disease is highlighted by these findings. To lower the load of periodontal disease and improve overall oral health outcomes, public health efforts that promote smoking cessation and raise awareness of the hazards smoking poses to oral health must be put into action.

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