

A Comparative Analysis of Periodontal Disease: Assessing the Impact of Unhealthy Habits Vs Poor Oral Hygiene

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Abstract- Periodontitis, a type of gum disease, is connected to various risk factors, particularly chronic periodontitis. The usage of tobacco is acknowledged as a risk element for numerous health issues, and emerging evidence underscores its adverse influence on periodontal health. In this cross-sectional study, the objective was to clinically evaluate and draw a comparison regarding the extent of periodontal damage among individuals with chronic periodontitis, differentiating between those who have unhealthy habits (Group A) and those who have poor oral hygiene (Group B) within a population in South India. The study encompassed a total of 40 patients with chronic periodontitis, with 20 falling into the category of bad habits (Group A) and the other 20 as poor oral hygiene (Group B). The assessment of periodontal condition encompassed critical clinical measures such as the Plaque Index (PI), Gingival Index (GI), Periodontal Probing Depth (PPD), and Clinical Attachment Level (CAL). The outcomes demonstrated that the severity of periodontal degradation was analogous between person with bad habits (Group A) and poor oral hygiene (Group B).

Keywords:

Plaque Index (PI), Gingival Index (GI), Periodontal Probing Depth (PPD), and Clinical Attachment Level (CAL) , Gum Disease, Gingivitis, Bone Loss, Periodontitis, Dental Radiograph, Tooth caries, Dental Decision Making, Tooth issues, Tooth structure, Dental disease prediction, Unhealthy habits, and Poor oral hygiene.

I.INTRODUCTION

Periodontal disease is influenced by a combination of modifiable and unmodifiable risk factors that contribute to its development and progression.

Modifiable risk factors are Poor Oral Hygiene, Smoking and Tobacco Use, Diet, Stress, Bruxism, Diabetes and Medications. Unmodifiable risk factors are Genetics, Age, Gender and Systemic Conditions.[1]

While unmodifiable risk factors cannot be changed, they help identify individuals who might be more vulnerable to periodontal disease. [2] Modifiable risk factors, on the other hand, provide opportunities for prevention and management through lifestyle changes and proper oral care. Regular dental check-ups and maintaining good oral hygiene practices are essential in minimizing the impact of these risk factors and promoting gum health.[18]

II.UNHEALTHY HABITS

Smoking and tobacco use are among the most significant risk factors for periodontitis. [3]The harmful chemicals in tobacco products impair blood flow to the gums and hinder the body's ability to fight infections. Smokers often have deeper periodontal pockets, greater bone loss, and less favorable responses to treatment

compared to non-smokers.[15] Smoking also masks some symptoms of gum disease, making it harder to detect the condition in its early stages.

Excessive alcohol consumption can weaken the immune system, making it less effective at combating infections, including those affecting the gums.[4] Alcohol can also contribute to dry mouth, which reduces saliva flow and affects the mouth's natural defense mechanisms. While alcohol alone may not be a primary cause of periodontitis, heavy and consistent drinking can exacerbate existing gum problems and slow down the healing process.[12]

Chewing tobacco, snuff, and other smokeless tobacco products expose the oral tissues to harmful substances that can lead to gum irritation, recession, and increased vulnerability to infections. [5]Smokeless tobacco users have an increased risk of developing gum disease and other oral health issues.

The combination of bad habits can significantly increase the severity of periodontitis. [11]For example, individuals who smoke and consume alcohol excessively may experience more rapid bone loss and tissue destruction.

III. POOR ORAL HYGIENE

Plaque is a soft, sticky film of bacteria that constantly forms on your teeth. If you don't brush and floss regularly, plaque accumulates along the gumline and between teeth. [6]Plaque contains harmful bacteria that can cause inflammation of the gums, known as gingivitis.

Gingivitis is the earliest stage of gum disease. It's characterized by red, swollen, and bleeding gums. Poor oral hygiene, such as infrequent or inadequate brushing and flossing, allows plaque to build up, leading to this inflammation. [7]Gingivitis is reversible with proper oral care and professional dental cleanings.

If gingivitis is left untreated and the plaque buildup isn't adequately addressed, it can progress to a more severe form of gum disease called periodontitis. In periodontitis, the inflammation extends deeper into the supporting structures of the teeth, including the bone. [8]This can lead to pockets forming between the gums and teeth, where more bacteria can accumulate.

In periodontitis, the body's immune response to the bacteria and toxins produced by the plaque can actually damage the bone and connective tissues that hold teeth in place. [9]This can result in gum recession, bone loss, and even tooth mobility or tooth loss.

IV. MATERIALS AND METHODS

A total of 40 individuals diagnosed with chronic periodontitis were included in this study. The sample consisted of both males and females, though not in equal numbers. Among them, 20 males exhibited unhealthy habits, while the other 20 participants (comprising 12 females and 8 males) displayed poor oral hygiene practices.

The diagnostic criteria for chronic periodontitis involved the presence of a minimum of three teeth with attachment loss exceeding 2 mm and a periodontal probing depth (PPD) surpassing 4 mm.[10] Participants were either partially edentulous or dentate, with a minimum of 20 teeth present in the oral cavity.

The selected participants were categorized into two distinct groups: Group A encompassed individuals with unhealthy habits, specifically those who smoked around 6-7 cigarettes per day for the past 5 years. Group B included participants with poor oral hygiene practices.

The study sample's age range was between 40 and 65 years, and individuals with systemic diseases, pregnant or lactating females, those on medications impacting periodontal health, and those affected by both conditions were excluded from the study.

TABLE 1: PARAMETER RANGES USED TO ASSESS PERIODONTAL DISEASE

Parameters	Range
CLINICAL ATTACHMENT LOSS	>2 mm
PROBING DEPTH (in mm)	>=4 mm
PLAQUE INDEX	0-3
GINGIVAL INDEX	0-3

V.RESULTS & DISCUSSION

The findings reveal that the average periodontal probing depth (PD) in Group A was significantly lower than that observed in Group B. However, the average clinical attachment level (CAL) in Group A did not exhibit a significant difference when contrasted with the mean CAL in Group B. The gingival index (GI) did not display a notable distinction between Group A and Group B. Notably, the plaque index (PI) demonstrated a significant reduction in Group A compared to Group B, signifying a marked decrease in plaque accumulation within Group A.

PARAMETERS	UNHEALTHY HABITS	POOR ORAL HYGIENE
PLAGUE INDEX	2.6	2.9
GINGIVAL INDEX	2.5	2.6
PD	3.5	4.5
CAL	3.5	3.6

TABLE 2:COMPARISION OF MEAN VALUES AMONG PERSON WITH UNHEALTHY HABIT AND POOR ORAL HYGIENE

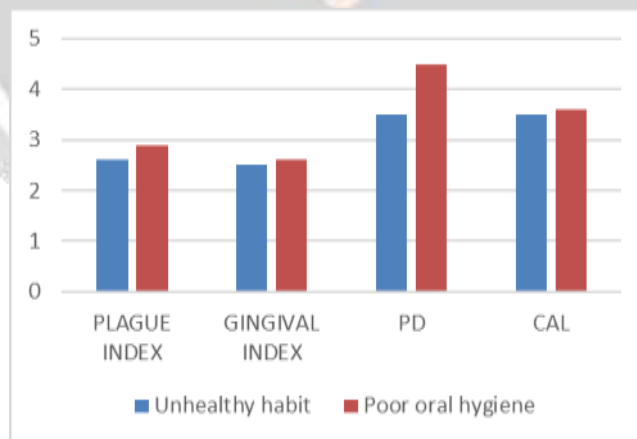


FIGURE1:COMPARISION OF MEAN VALUES AMONG PERSON WITH UNHEALTHY HABIT AND POOR ORAL HYGIENE

VI. CONCLUSION

Based on the constraints of the current study, the following conclusions have been drawn. There is a slightly greater degree of periodontal damage observed in individuals with poor oral hygiene (Group A) in comparison to those with unhealthy habits (Group B). Bad habits and poor oral hygiene both have distinct implications for oral health. While bad habits like smoking can have severe and direct consequences, poor oral hygiene practices can lead to similar

issues through a different route. Both factors underscore the importance of maintaining good oral hygiene practices and making positive lifestyle choices for optimal oral health.

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