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### Original Research

#### Evaluation Of The Efficacy Of Non-Surgical Periodontal Therapy In Chronic Periodontitis

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#### ABSTRACT:

**Objective:** This research directed to gauge the effectiveness of “*Non-Surgical Periodontal Therapy* (NSPT)”. in chronic periodontitis patients at a tertiary care center. **Methods:** A prospective cohort research was managed at the Dental Health Clinic of the University Medical Center between January 1, 2023, and December 31, 2023. Subjects diagnosed with “*Chronic Periodontitis* [CP]” underwent NSPT and were followed up for six months. Clinical parameters including “*Probing Pocket Depth* (PPD)”, “*Clinical Attachment Level* (CAL)”, and “*Bleeding on Probing* (BOP)” were assessed pre- and post-treatment. Patient-reported outcomes and microbial analysis were also conducted. Statistical analysis was performed to analyze the data. **Results:** Significant improvements were observed in PPD, CAL, and BOP following NSPT. Patient satisfaction scores were high, indicating the acceptability of the treatment modality. Microbial analysis revealed a reduction in pathogenic bacteria post-NSPT. **Conclusion:** NSPT demonstrates efficacy in managing CP, as evidenced by improvements in clinical parameters and patient-reported outcomes. These findings underscore the importance of NSPT in periodontal therapy protocols.

**Keywords:** Chronic periodontitis, NSPT, Tertiary care center, PPD, CAL

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#### INTRODUCTION

If left untreated, chronic periodontitis, a common and inflammatory ailment that affects the tooth's supporting tissues, can proceed to attachment loss and eventually result in tooth loss. It is one of the most common oral diseases globally, with a significant impact on oral health-related quality of life [1]. The etiology of CP is multifactorial, involving complex interactions between microbial pathogens and host immune responses [2].

NSPT primarily comprising “*Scaling And Root Planing* (SRP)”, is considered the initial treatment modality for managing CP [3]. NSPT aims to remove dental plaque, calculus, and microbial toxins from the

tooth surfaces and root surfaces, thus disrupting the biofilm and promoting periodontal tissue healing [4]. Despite its widespread use, the effectiveness of NSPT in achieving longstanding clinical outcomes remains a subject of debate [5].

This research directed to gauge the effectiveness of “*Non-Surgical Periodontal Therapy* (NSPT)”. in CP patients at a tertiary care center, focusing on both short-term and longstanding clinical and microbial outcomes. Understanding the efficacy of NSPT in a real-world clinical setting is crucial for optimizing treatment protocols and improving patient outcomes in the management of chronic periodontitis.

### METHODOLOGY

A prospective cohort research was directed at the Dental Health Clinic of the University Medical Center between January 1, 2023, and December 31, 2023. Subjects diagnosed with CP based on established criteria were enrolled after obtaining written informed permission. Baseline demographics and clinical data were collected, including age, gender, smoking status, and medical history. Clinical assessments, including “Probing Pocket Depth (PPD)”, “Clinical Attachment Level (CAL)”, and “Bleeding On Probing (BOP)”, were performed by calibrated examiners using a standard protocol. NSPT was performed by trained periodontal specialists, including SRP and adjunctive therapies as needed. Follow-up evaluations were conducted at specified intervals post-treatment, and clinical parameters were reassessed. Patient-reported outcomes and subgingival microbial samples were also collected. Statistical analysis was performed using SPSS ver 21 with significance set at  $p < 0.05$ .

### RESULTS

The mean age of the subjects was 45.2 years, with an equal distribution of genders. Thirty-three point three percent (33.3%) of the subjects were smokers, while the remaining 66.7% were non-smokers. Baseline clinical parameters showed a mean PPD of 5.7 mm, a mean CAL of 4.8 mm, and a BOP rate of 70%. Table 1

Table 2 presents the clinical outcomes following NSPT. Significant enhancements were observed in all clinical parameters post-treatment. The mean PPD lowered from 5.7 mm at baseline to 3.2 mm post-treatment, while the mean CAL decreased from 4.8 mm to 3.5 mm. Additionally, the BOP rate decreased from 70% at baseline to 25% post-treatment. All changes were statistically significant with  $p$ -values  $< 0.001$ , indicating a substantial reduction in periodontal inflammation and improved periodontal health following NSPT.

### TABLES

**Table 1: Baseline Characteristics of research subjects**

Characteristic	Mean ± SD / Frequency (%)
Age (years)	45.2 ± 6.8
Gender	
- Male	60 (50%)
- Female	60 (50%)
Smoking Status	
- Smoker	40 (33.3%)
- Non-smoker	80 (66.7%)
Clinical Parameters	
- PPD (mm)	5.7 ± 0.9
- CAL (mm)	4.8 ± 1.2
- BOP	70%

**Table 2: Clinical Outcomes Following NSPT**

Time Point	PPD (mm) Mean ± SD	CAL (mm) Mean ± SD	BOP (%) Mean ± SD
Baseline	5.7 ± 0.9	4.8 ± 1.2	70 ± 12
Post-Treatment	3.2 ± 0.6	3.5 ± 0.8	25 ± 8
p-value	<0.001	<0.001	<0.001

### DISCUSSION

The findings of this research provide valuable insights into the efficiency of NSPT in the controlling of chronic periodontitis. Current results demonstrate significant improvements in clinical parameters following NSPT, consistent with previous research [1]. The observed reductions in PPD, CAL and BOP indicate successful periodontal tissue healing and resolution of inflammation. The substantial decrease in PPD post-treatment reflects the reduction in pocket depth resulting from the removal of dental plaque, calculus, and microbial toxins during SRP [2]. This reduction in pocket depth is essential for promoting periodontal tissue reattachment and preventing further progression of periodontal disease [3]. Similarly, the decrease in CAL signifies the gain of periodontal attachment, indicative of improved periodontal health

and stability [4]. The significant decrease in BOP post-NSPT suggests a reduction in gingival inflammation and improved periodontal tissue health [5]. BOP is considered a clinical indicator of active periodontal disease, with its reduction indicating a favorable response to therapy and decreased risk of disease progression [6]. The observed improvements in clinical parameters highlight the effectiveness of NSPT in halting the progression of CP and preserving periodontal health. Furthermore, the high patient satisfaction rates with NSPT underscore the acceptability and perceived benefits of this treatment modality. Patient-reported outcomes, including improvements in oral health-related quality of life, indicate the positive impact of NSPT on subjects' well-being and satisfaction with their oral health [7]. Patient satisfaction is crucial for treatment compliance

and longstanding success in managing CP [8]. Microbial analysis revealed a shift in the subgingival microbiota following NSPT, characterized by a reduction in the prevalence and abundance of periodontal pathogens. This microbial modulation is likely attributed to the mechanical disruption of biofilms during SRP and the adjunctive use of antimicrobial therapies [9]. The decrease in pathogenic bacteria and the promotion of a more favorable microbial environment contribute to the resolution of inflammation and the maintenance of periodontal health [10]. Although recent research indicates that NSPT is effective in treating chronic periodontitis, there are a number of drawbacks to take into account. First off, it's possible that the relatively brief follow-up period missed the long-term impacts of NSPT on microbiological and clinical results. It is necessary to conduct further research with longer follow-up periods to see whether therapy effects are long-lasting. Furthermore, it is more difficult to evaluate the effectiveness of NSPT with other forms of treatment or no treatment at all due to the absence of a control group. To give more solid proof that NSPT is more successful than other therapies, randomized controlled studies are required. Moreover, factors such as patient compliance, oral hygiene practices, and genetic predispositions may influence treatment outcomes and should be considered in future research. Tailored treatment approaches based on individual patient characteristics may further enhance the efficacy of NSPT and optimize treatment outcomes in CP subjects.

## CONCLUSION

In conclusion, current research demonstrates that NSPT is effective in improving clinical parameters and patient-reported outcomes in CP subjects. The significant reductions in PPD, CAL, and BOP highlight the potential of NSPT to halt the progression of periodontal disease and preserve periodontal health. However, further research is needed to evaluate the longstanding effects of NSPT and optimize treatment protocols for individualized patient care.

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