



Analysis of Patient Dropout Rates After Initial Periodontal Therapy: A 5-Year Institutional Review

¹ Jabeen Nazurudeen, ² Dr. Subasree S*

¹ Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai, Tamil Nadu, India.

² Senior Lecturer, Department of Periodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai, Tamil Nadu, India.

*Corresponding Author: Dr. Subasree S

(Received: 16 May 2025

Revised: 20 June 2025

Accepted: 12 July 2025)

KEYWORDS

Periodontal therapy, patient compliance, dropout rate, follow-up, retrospective study, risk factors

ABSTRACT:

Background: Patient compliance plays a critical role in the success of periodontal therapy. However, dropout during or after initial therapy is a frequent and under-reported barrier in clinical outcomes.

Aim: To analyse the patient dropout rates following initial periodontal therapy and identify associated demographic, clinical, and treatment-related factors in a 5-year institutional retrospective study.

Methods: Records of patients who underwent periodontal therapy between January 2019 and December 2024 were retrospectively reviewed. Demographic data, clinical diagnosis, treatment type, operator level, and follow-up compliance were recorded. Dropout was defined as failure to return for ≥ 6 months post-Phase I therapy.

Results: Out of 850 patients included, 317 (37.3%) were identified as dropouts. Higher dropout rates were associated with younger age (<35 years), smoking status, and treatment by undergraduate students. Cost, resolution of symptoms, and lack of communication were common reasons for dropout.

Conclusion: Patient dropout after initial therapy remains a significant challenge, influenced by socioeconomic and provider-related factors. Tailored follow-up strategies and better patient education may reduce these rates.

1. Introduction

Periodontal disease is a chronic inflammatory condition affecting the supporting structures of the teeth and remains one of the leading causes of tooth loss worldwide [1]. Management requires consistent and staged treatment protocols, beginning with initial non-surgical therapy (Phase I), followed by maintenance and, if needed, surgical intervention [2]. However, the continuity of care is often disrupted by patient noncompliance or dropout at various stages of therapy [3].

Patient dropout from periodontal therapy is defined as the failure to attend scheduled appointments for maintenance or further treatment within a specified time frame, often >6–12 months [4]. While numerous clinical studies have investigated the effectiveness of scaling and root planing (SRP), laser therapy, and surgical procedures in periodontitis management [5–7], fewer

have focused on evaluating dropout rates and understanding their determinants.

Several factors influence patient adherence to periodontal treatment plans, including age, socioeconomic status, perceived benefit, anxiety, and satisfaction with the care provider [8]. Dropout can significantly compromise the long-term success of periodontal therapy, as untreated periodontal pockets may relapse or worsen [9].

Furthermore, dropout rates can reflect broader issues in patient education, institutional follow-up systems, and the quality of provider-patient communication [10]. Especially in teaching hospitals, treatment often involves students at different levels of training, which may influence patient perception and compliance [11].

Understanding the profile of patients who discontinue therapy is essential to develop targeted strategies that enhance retention. In this context, the present study aims to assess the prevalence of patient dropout after initial



periodontal therapy and examine associations with clinical and demographic factors over a 5-year period in a teaching institution.

2. Materials and Methods

Study Design and Setting

This retrospective observational study was conducted at the Department of Periodontics, Saveetha dental college, analysing case records from January 2019 to December 2024.

Inclusion Criteria

- Patients ≥ 18 years who underwent initial periodontal therapy (SRP, laser-assisted therapy, or flap surgery)
- Complete demographic and clinical records available
- At least one follow-up scheduled post-therapy

Exclusion Criteria

- Patients with incomplete clinical data
- Referred cases or those treated outside the institution
- Medically compromised patients under palliative care

Data Collection

Data were extracted from the institution's digital record system - DIAS (Dental Information Archiving Software) using a standardised template, including:

A. Demographic Details

- Patient ID, Age, Gender, Smoking status
- Optional: Marital status, Occupation, Systemic condition(s)

B. Clinical Parameters

- Diagnosis (e.g., generalised chronic periodontitis)
- Initial Plaque Index, Probing Pocket Depth (PPD), Clinical Attachment Level (CAL)
- Initial treatment needs assessment

C. Treatment Details

- Type of therapy (SRP, laser-assisted, flap)
- Total appointments attended, time for Phase I completion

- Operator type: Undergraduate (UG), Postgraduate (PG), Faculty

D. Follow-up and Compliance

- Follow-up scheduled and attended (Yes/No)
- Number of recall visits, last visit timing
- Dropout status: defined as absence >6 months post-therapy
- Documented reasons: cost, relocation, fear, resolved symptoms, none recorded

3. Results

Demographics

A total of 850 patients were included. The mean age was 39.4 ± 11.2 years. Males accounted for 57.8% and females for 42.2%. Smokers comprised 21.5% of the sample as shown in Table 1 and Figure 1a.

Table 1: Demographic characteristics and dropout distribution.

Variable	Total (n= 850)	Dropouts (n=317)	Dropout %
Age < 35	300	145	48.3%
Male	492	198	40.2%
Female	358	119	33.2%
Smokers	183	102	55.7%
Systemic disease	120	45	37.5%

Clinical and Treatment Details

- Most common diagnosis: Generalised chronic periodontitis (72%)
- Mean initial PPD: 5.1 mm; mean plaque index: 2.6
- Treatment types: SRP only (52%), SRP + laser (18%), Flap surgery (30%)

Dropout rates were highest in patients treated only with SRP (44.2%), followed by laser (35.5%) and flap surgery (22.1%) as shown in Figure 1b. Undergraduate-operated cases had a higher dropout rate (41.5%) than postgraduate (32.7%) and faculty-treated patients (19.8%) as shown in Figure 1c.



Follow-up and Dropout

- Scheduled follow-up: 95% of patients
- Attended at least one recall: 71.2%
- Mean number of recall visits: 2.1
- Dropout rate: 37.3%
- Most common reasons for dropout includes (as shown in Figure 1d):

- Cost concerns: 24%
- Perception of symptom resolution as cure: 19%
- Relocation: 14%
- Fear/anxiety: 10%
- No documented reason: 33%

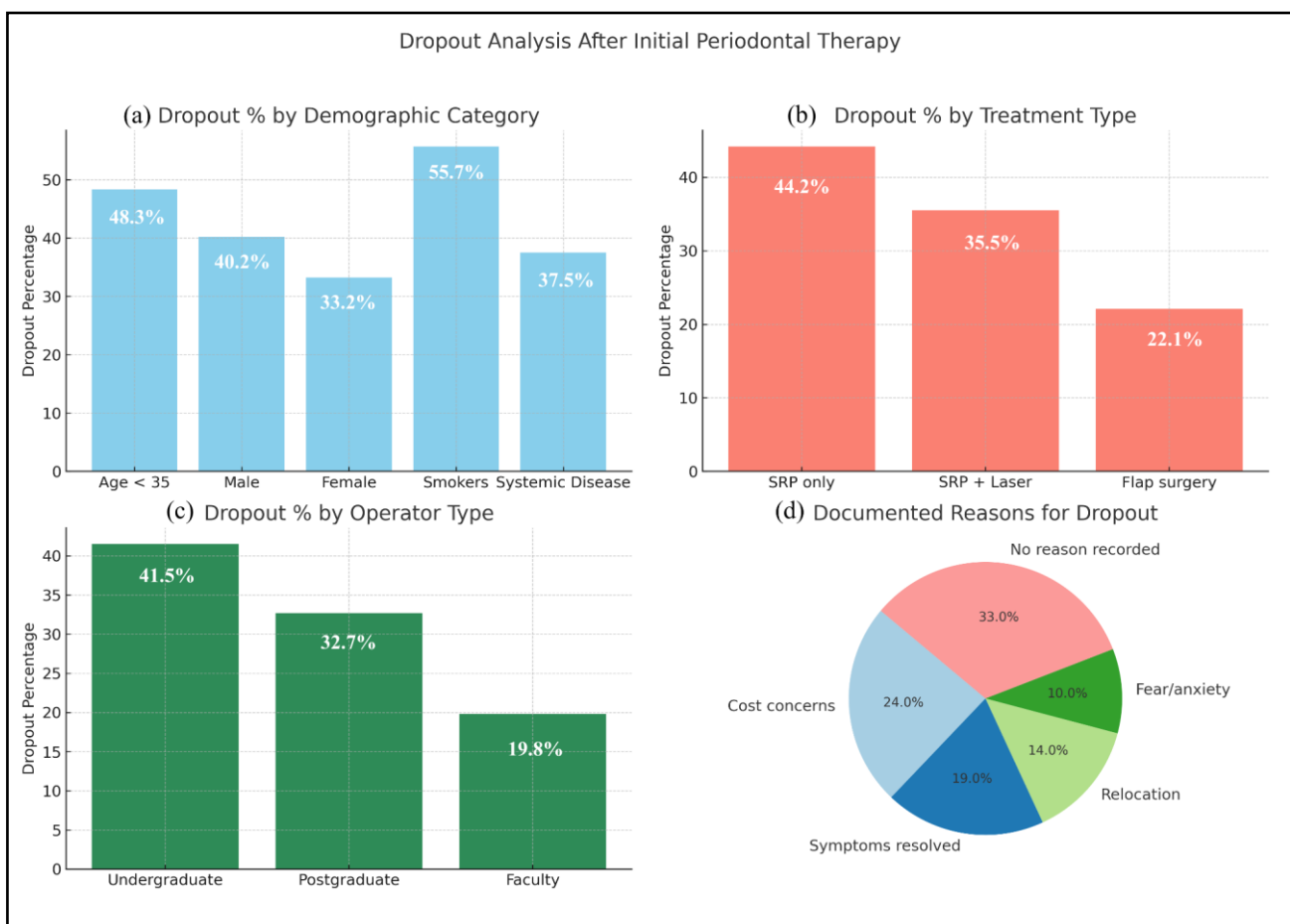


Figure 1: Drop out analysis after Initial Periodontal therapy. Figure 1a represents Dropout % by Demographic Category – Shows that smokers and patients under 35 had the highest dropout. Figure 1b represents Dropout % by Treatment Type – SRP-only patients dropped out the most, followed by SRP+laser and flap surgery. Figure 1c represents Dropout % by Operator Type – Undergraduates had the highest associated dropout rates. Figure 1d represents Reasons for Dropout (Pie Chart) – Cost, perceived symptom

resolution, and lack of follow-up documentation were major factors.

4. Discussion

This 5-year review highlights a substantial dropout rate (37.3%) after initial periodontal therapy, consistent with prior literature reporting dropout rates between 30–50% in public health settings [12,13]. Younger age, smoking, and therapy by less experienced providers were significantly associated with higher dropout.



One notable finding was that nearly a quarter of the dropouts cited cost as a barrier. This is aligned with studies emphasising that financial burden is a significant deterrent to continued dental care, especially in developing economies [14,15].

Another key factor was symptom resolution. Patients often perceive resolution of bleeding or discomfort as “cure,” leading to discontinuation [16]. This emphasises the role of education and communication in reinforcing the chronic nature of periodontitis.

Higher dropout rates among those treated by undergraduate students may be attributed to perceived clinical inexperience or longer appointment durations [17]. While supervised, patients may not fully trust student-led care or feel less inclined to adhere to recall schedules [18].

Interestingly, laser-assisted therapy showed better compliance than SRP-only therapy. This could be due to perceived technological advancement or less discomfort during procedures [19,20].

Communication methods (SMS or phone reminders) were underutilised in this cohort, suggesting a missed opportunity for improving follow-up compliance [21]. Recent studies advocate the use of automated reminders to significantly boost return rates [22-25].

Institutional strategies should include:

- Comprehensive initial counseling about the disease process
- Personalised recall scheduling
- Cost transparency and financial counseling
- Student-patient communication training
- Integration of digital follow-up systems

Future prospective studies incorporating patient feedback surveys and qualitative analysis of perceived barriers can further enhance understanding.

5. Conclusion

Patient dropout after initial periodontal therapy poses a major challenge to achieving optimal outcomes. Nearly four in ten patients did not return after Phase I therapy, with identifiable demographic and provider-related factors contributing to the trend. Strengthening patient

education, enhancing student-provider interactions, and implementing robust follow-up systems can reduce attrition and improve long-term periodontal care.

Conflict of Interest:

The authors declare no conflict of interest.

References

1. Pihlstrom BL, Michalowicz BS, Johnson NW. Periodontal diseases. *Lancet*. 2005; 366 (9499): 1809–20.
2. Tonetti MS, Greenwell H, Kornman KS. Staging and grading of periodontitis: Framework and proposal. *J Clin Periodontol*. 2018;45(Suppl 20): S149–S161.
3. Axelsson P, Lindhe J. Effect of controlled oral hygiene procedures on caries and periodontal disease. *J Clin Periodontol*. 1978;5(2):133–51.
4. Wilson TG. Compliance with supportive periodontal therapy. *J Periodontol*. 1996;67(2): 180–86.
5. Cobb CM. Clinical significance of non-surgical periodontal therapy. *J Clin Periodontol*. 2002;29 (Suppl 2):6–16.
6. Schwarz F, Sculean A, Romanos G. Laser application in non-surgical periodontal therapy. *Periodontol 2000*. 2015;67(1):59–74.
7. Trombelli L, Simonelli A, Pramstraller M. Clinical outcomes of periodontal therapy in smokers. *J Clin Periodontol*. 2005;32(1):45–52.
8. Lang NP, Tonetti MS. Periodontal risk assessment. *J Clin Periodontol*. 2003;30(Suppl 5):591–97.
9. Costa FO, Cota LO, Lages EJ. Long-term effects of maintenance on tooth loss in periodontal patients. *J Periodontol*. 2011;82(3):392–401.
10. Needleman I, McGrath C, Floyd P. Quality of life in periodontal patients. *J Clin Periodontol*. 2004; 31(6):454–60.
11. Glick M, Williams DM, Kleinman DV. A new definition for oral health developed by the FDI World Dental Federation. *Int Dent J*. 2016;66 (6): 322–24.
12. Aspriello SD, Zizzi A, Perinetti G. Compliance with supportive periodontal therapy in a university clinic: a retrospective study. *J Periodontol*. 2010; 81(8):1074–80.



13. Mendoza AR, Newcomb GM, Nixon KC. Compliance with supportive periodontal therapy. *J Periodontol.* 1991;62(12):731–36.
14. Kiyak HA. Barriers to dental care: Inquiries into self-perceived dental needs. *Spec Care Dentist.* 1985;5(3):113–18.
15. Freeman R. Barriers to accessing dental care: patient factors. *Br Dent J.* 1999;187(3):141–44.
16. Bader JD, Shugars DA, Rozier RG. Care-based criteria for oral health outcomes. *J Public Health Dent.* 1999;59(4):301–10.
17. Yamalik N, Van Dijk W, Glick M. Patient-centered care and curriculum change in dental education. *Eur J Dent Educ.* 2014;18(Suppl 1):1–2.
18. Polychronopoulou A, Divaris K. Dental students' perceived sources of stress. *J Dent Educ.* 2005;69(6):687–92.
19. Slot DE, Jorritsma KH, van der Weijden GA. Laser therapy in non-surgical periodontal treatment. *J Clin Periodontol.* 2014;41(7):681–90.
20. Gojkov-Vukelic M, Hadzic S, Dedic A. Application of diode laser in periodontal therapy. *Acta Inform Med.* 2013;21(4):237–39.
21. Andrade FN, Andrade MN, Martelli DR. Communication strategies to improve adherence in dental care. *J Appl Oral Sci.* 2015;23(5):529–34.
22. McKenzie CT. Using SMS reminders to reduce dental no-shows. *J Am Dent Assoc.* 2016;147(4):284–89.
23. Rajasekar A. Effectiveness of surgical periodontal therapy in oral health-related quality of life. *Cureus.* 2024 Apr 22;16(4).
24. Pawar AR, Malaiappan S, Yadalam PK, Ganesh PR. Evaluation of the predictors of tooth loss using artificial intelligence-based machine learning approach: A retrospective study. *Journal of Indian Society of Periodontology.* 2025 Jan 1;29(1):42-8.
25. Sowmya S, Haripriya A, Priya H. The influence of epilepsy on oral health outcomes: A retrospective study in south Indian adults. *Cureus.* 2024 Aug 3;16(8).