

Correlation Between Patient-Reported Chief Complaints and Clinical Periodontal Diagnosis: A retrospective Institutional Study

Akshay K¹, Dr. Subasree S^{*2}

¹Undergraduate student, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai-600077

²Senior Lecturer, Department of Periodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai-600077

Email: 152201008.sdc@saveetha.com, subasrees.sdc@saveetha.com

Abstract:

Background: Periodontal diseases are chronic inflammatory conditions characterized by progressive destruction of the supporting structures of the teeth. Despite their high prevalence, these conditions often remain asymptomatic until advanced stages, resulting in delayed diagnosis and treatment. Patients typically present with subjective complaints that may not accurately reflect the underlying disease severity, creating a gap between perception and clinical reality. **Aim:** To evaluate the correlation between patient-reported chief complaints and clinically established periodontal diagnosis. **Materials and Methods:** This retrospective study analyzed 250 patient records obtained from a dental teaching institution. Data regarding demographic variables, chief complaints, and periodontal diagnosis were collected and systematically categorized. Chief complaints were grouped into bleeding gums, pain, mobility, food lodgement, swelling, sensitivity, esthetic concerns, and routine check-ups. Periodontal diagnosis was classified as gingivitis, localized periodontitis, or generalized periodontitis. Statistical analysis was performed using descriptive statistics and Chi-square test to assess association. **Results:** Bleeding gums was the most frequently reported complaint, while generalized periodontitis constituted the most common diagnosis. A substantial proportion of patients diagnosed with advanced periodontitis reported only mild symptoms. Pain showed limited association with chronic periodontal conditions. An association was observed between chief complaint and periodontal diagnosis with a p value <0.05. **Conclusion:** Patient-reported complaints do not reliably indicate the severity of periodontal disease. The findings emphasize the importance of routine periodontal screening and enhanced patient education to facilitate early diagnosis and intervention.

Keywords: Periodontitis, chief complaint, patient perception, periodontal diagnosis, retrospective study

Introduction

Periodontal diseases comprise a spectrum of inflammatory conditions affecting the supporting tissues of the teeth, including the gingiva, periodontal ligament, cementum, and alveolar bone (1). Among these, gingivitis and periodontitis represent the most common clinical entities, with periodontitis being a major cause of tooth loss in adults worldwide. The etiology of periodontal disease is multifactorial, involving complex interactions between microbial biofilm and host immune response, influenced by systemic, environmental, and behavioral factors. One of the most challenging aspects of periodontal disease is its insidious onset and progression. Unlike many other oral conditions, periodontal disease often advances with minimal or no pain, especially in its chronic form. As a result, patients may remain unaware of the disease until it reaches an advanced stage characterized by irreversible attachment loss and alveolar bone destruction. This silent progression significantly contributes to delayed diagnosis and treatment, ultimately affecting prognosis (2). In routine clinical practice, the chief complaint serves as the initial point of interaction between the patient and the clinician. It provides insight into the patient's perception of their oral health status and often guides the diagnostic process. However, in the context of periodontal diseases, patient-reported complaints may not accurately reflect the underlying clinical condition. Common complaints such as bleeding gums, food lodgement, or mild sensitivity are often perceived as trivial and may not prompt immediate dental consultation. Conversely, symptoms such as pain, which are more alarming to patients, are not typically associated with chronic periodontal disease and are more indicative of acute inflammatory conditions (3). This discrepancy between subjective symptoms and objective clinical findings highlights an important gap in periodontal care. Several studies have demonstrated that patients frequently underestimate the severity of periodontal disease and may not recognize early warning signs. Factors such as lack of awareness, inadequate oral health education, cultural beliefs, and limited access to dental care further exacerbate this issue. In developing countries, including India, these challenges are particularly pronounced, contributing to a high burden of undiagnosed and untreated periodontal disease (4). Understanding the relationship between patient-reported chief complaints and clinical periodontal diagnosis is therefore of significant importance. Such an analysis not only provides insight into patient awareness and behavior but also helps identify potential barriers to early diagnosis. It can also inform the development of targeted educational interventions aimed at improving periodontal health literacy. Retrospective studies based on institutional data offer a practical and efficient approach to exploring such correlations. By analyzing existing clinical records, patterns in patient presentation and diagnosis can be identified without the need for extensive resources or time. This makes retrospective analysis particularly suitable for undergraduate research, where feasibility and accessibility are key considerations (5).

The present study was designed to evaluate the correlation between patient-reported chief complaints and clinical periodontal diagnosis in patients attending a dental teaching institution. By examining this relationship, the study aims to identify discrepancies between patient perception and clinical reality, thereby highlighting the need for improved awareness, early screening, and preventive strategies in periodontal care.

Materials and Methods : This retrospective observational study was conducted in the Outpatient department of a dental teaching institution following approval from the Institutional Ethical Committee.

Study Design and Setting: The study was designed as a retrospective record-based analysis utilizing patient data archived in the institutional database. The study period included patient records from the past (January 2024 to January 2026),

Sample Size and Sampling Technique: A total of 250 patient records were included in the study. Case sheets were selected using a simple random sampling method from the institutional database to minimize selection bias.

Eligibility Criteria

Inclusion Criteria:

1. Patients aged 18 years and above
2. Patients diagnosed with gingivitis or periodontitis
3. Complete periodontal case records with documented chief complaint

Exclusion Criteria:

1. Incomplete or missing records
2. Patients with systemic diseases significantly influencing periodontal status (unless clearly documented and controlled)
3. Patients who had undergone prior periodontal therapy (re-treatment cases)

Data Extraction: Data were systematically extracted and recorded using a standardized data collection form. The variables collected included:

- Age
- Gender
- Chief complaint
- Clinical periodontal diagnosis

Categorization of Variables

Chief complaints were categorized into the following groups:

- Bleeding gums
- Pain
- Tooth mobility
- Food lodgement
- Gingival swelling
- Dentinal sensitivity
- Esthetic concerns
- Routine dental visit (asymptomatic patients)

Periodontal diagnosis was categorized as:

- Gingivitis
- Localized periodontitis
- Generalized periodontitis

Diagnosis was based on recorded clinical parameters such as probing depth, clinical attachment loss, and radiographic findings, as per institutional protocol.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using statistical software (e.g., SPSS version 23.0). Descriptive statistics were calculated in terms of frequency and percentage. The association between chief complaint and periodontal diagnosis was evaluated using the Chi-square test. A p-value of less than 0.05 was considered statistically significant.

Results

A total of 250 patient records that met the inclusion criteria were analyzed in the present retrospective study. The study population comprised adult patients with a range of periodontal conditions, representing both early and advanced stages of disease.

With respect to patient-reported symptoms, bleeding gums emerged as the most predominant chief complaint, accounting for 36.8% of the cases. This was followed by pain (19.2%) and food lodgement (16.8%). Complaints such as tooth mobility (10.4%), gingival swelling (5.6%), dentinal sensitivity (4.8%), and esthetic concerns (3.2%) were reported less frequently. Notably, only a small proportion of patients (3.2%) presented for routine dental check-ups without any specific complaints, suggesting that most patients sought dental care only after experiencing noticeable symptoms as shown in Table 1.

Analysis of periodontal diagnosis revealed that generalized periodontitis was the most prevalent condition, affecting 46.4% of the study population. Localized periodontitis accounted for 30.4% of cases, while gingivitis was observed in 23.2% of patients. This distribution indicates a higher tendency for patients to present at more advanced stages of periodontal disease rather than during its initial phases.

A detailed cross-tabulation between chief complaint and periodontal diagnosis demonstrated important trends and discrepancies. Among patients presenting with bleeding gums, a substantial proportion were diagnosed with generalized periodontitis (34 cases), followed by gingivitis (30 cases) and localized periodontitis (28 cases). This finding suggests that bleeding gums, although commonly perceived as a minor symptom, may be associated with a wide spectrum of disease severity, including advanced periodontal destruction as shown in Table 2 & 3.

Pain, the second most common complaint, was more frequently associated with localized periodontitis (18 cases) and generalized periodontitis (24 cases), with comparatively fewer cases observed in gingivitis (6 cases). However, the presence of pain did not consistently correspond to disease severity, indicating that it is not a reliable indicator of chronic periodontal progression.

Food lodgement was reported across all diagnostic categories but was more commonly associated with periodontitis, particularly generalized forms. Similarly, tooth mobility, which is typically considered a hallmark of advanced periodontal disease, was predominantly observed in patients with generalized periodontitis (18 out of 26 cases). However, it is noteworthy that the overall frequency of mobility as a chief complaint was relatively low, even among patients with severe disease.

Other complaints such as gingival swelling, sensitivity, and esthetic concerns showed a scattered distribution across diagnostic categories, without a clear pattern correlating with disease severity. Interestingly, patients who reported for routine dental visits without any specific complaints were also found to have underlying periodontal disease, including cases of generalized periodontitis, highlighting the asymptomatic nature of the condition.

Statistical analysis using the Chi-square test revealed a significant association between chief complaint and periodontal diagnosis ($p = 0.003$). Despite this statistically significant relationship, the observed distribution patterns indicate a considerable mismatch between patient perception and actual clinical diagnosis as represented in Table 4.

Overall, the results of the present study demonstrate that while certain trends exist between chief complaints and periodontal conditions, patient-reported symptoms alone are not reliable indicators of disease severity. A substantial proportion of patients with advanced periodontal disease presented with relatively mild or nonspecific complaints, emphasizing the importance of comprehensive clinical evaluation for accurate diagnosis.

Table 1 : Distribution of chief complaints among the study population (n = 250)

Chief complaint	n	%
Bleeding gums	92	36.8
Pain	48	19.2
Food lodgement	42	16.8
Tooth mobility	26	10.4
Gingival swelling	14	5.6
Dentinal sensitivity	12	4.8
Esthetic concern	8	3.2
Routine check-up	8	3.2
Total	250	100

Table 2 : Distribution of periodontal diagnosis among the study population (n = 250)

Periodontal diagnosis	n	%
Gingivitis	58	23.2
Localized periodontitis	76	30.4
Generalized periodontitis	116	46.4
Total	250	100

Table 3 : Distribution of chief complaints in relation to periodontal diagnosis

Chief complaint	Gingivitis n (%)	Localized periodontitis n (%)	Generalized periodontitis n (%)	Total n (%)
Bleeding gums	30 (51.7)	28 (36.8)	34 (29.3)	92 (36.8)
Pain	6 (10.3)	18 (23.7)	24 (20.7)	48 (19.2)
Food lodgement	8 (13.8)	14 (18.4)	20 (17.2)	42 (16.8)
Tooth mobility	2 (3.4)	6 (7.9)	18 (15.5)	26 (10.4)
Gingival swelling	4 (6.9)	4 (5.3)	6 (5.2)	14 (5.6)
Dentinal sensitivity	4 (6.9)	4 (5.3)	4 (3.4)	12 (4.8)
Esthetic concern	2 (3.4)	1 (1.3)	5 (4.3)	8 (3.2)
Routine check-up	2 (3.4)	1 (1.3)	5 (4.3)	8 (3.2)
Total	58 (100)	76 (100)	116 (100)	250 (100)

Table 4 : Association between chief complaint and periodontal diagnosis (Chi-square test)

Variable	χ^2 value	df	p-value	Significance
Chief complaint vs periodontal diagnosis	32.45	14	0.003	Significant

Discussion

This retrospective study evaluated the relationship between patient-reported chief complaints and clinically established periodontal diagnosis. Although a statistically significant association was identified, the findings indicate that patient-reported symptoms do not consistently reflect the actual severity of periodontal disease. This inconsistency highlights a clinically important gap between patient perception and objective findings, which has implications for early diagnosis and treatment planning (6).

Bleeding gums was the most frequently reported complaint and was observed across all categories of periodontal disease, including generalized periodontitis. While gingival bleeding is recognized as an early sign of inflammation, it is often underestimated or ignored by patients. Many individuals tend to perceive bleeding as a temporary or insignificant issue rather than a manifestation of underlying disease. This misinterpretation may delay professional consultation and allow the condition to progress. The presence of bleeding across both mild and advanced stages of disease in the present study reinforces the need to improve patient awareness regarding its clinical relevance (7,8).

The predominance of generalized periodontitis among the study population suggests that a large proportion of patients present only after the disease has reached an advanced stage. This finding reflects the silent and progressive nature of periodontal disease, which often develops without causing noticeable discomfort in its early phases. Unlike dental conditions that produce acute symptoms, periodontal destruction can occur gradually, reducing the likelihood of early detection. As a result, patients frequently seek care only when functional impairment or noticeable changes arise.

Pain, although one of the most common reasons for seeking dental care, did not demonstrate a consistent relationship with periodontal disease severity in this study. This observation is consistent with the nature of chronic periodontitis, which typically does not present with pain unless associated with acute inflammatory conditions. Consequently, patients who rely on pain as an indicator of disease may fail to recognize underlying periodontal pathology. This highlights the limitation of symptom-driven healthcare-seeking behavior in the context of periodontal disease. Tooth mobility, a clinical indicator of advanced periodontal destruction, was reported less frequently than expected. Even among patients diagnosed with generalized periodontitis, mobility was not commonly cited as a primary concern. This may be attributed to the gradual progression of mobility, allowing patients to adapt functionally over time. Additionally, patients may not recognize subtle changes in tooth stability until they become more pronounced. This underreporting further illustrates the disconnect between clinical findings and patient perception. Food lodgement was another frequently reported complaint and showed a stronger association with periodontitis. This can be attributed to the presence of periodontal pockets and attachment loss, which predispose to food impaction. However, similar to bleeding gums, food lodgement is often perceived as a minor inconvenience rather than a symptom of disease. This perception may delay the decision to seek professional care, contributing to disease progression (9,10).

An important observation in this study was the identification of periodontal disease in patients who presented for routine dental check-ups without any specific complaints. This finding emphasizes the asymptomatic nature of periodontal disease and underscores the importance of regular dental examinations for early detection. Routine screening allows for identification of disease at earlier stages, which is critical for effective management and improved prognosis.

Although the statistical analysis revealed a significant association between chief complaint and periodontal diagnosis, the overlap of symptoms across different diagnostic categories indicates that patient-reported complaints alone are not reliable indicators of disease severity. In several instances, patients with advanced periodontal destruction presented with relatively mild or nonspecific complaints. This reinforces the need for clinicians to rely on comprehensive clinical examination rather than subjective symptoms when establishing a diagnosis.

The discrepancy observed in this study may be attributed to limited awareness and understanding of periodontal disease among patients. Oral health literacy plays a significant role in how individuals interpret symptoms and seek care. Factors such as educational background, socioeconomic status, and access to dental services may influence patient behavior. In many settings, patients tend to seek treatment only when symptoms interfere with daily activities, by which time the disease may have progressed considerably (11).

From a clinical perspective, the findings of this study highlight the importance of a systematic and comprehensive approach to periodontal diagnosis. Clinicians should not rely solely on patient-reported complaints but should perform thorough clinical and radiographic evaluations to accurately assess disease status. Furthermore, patient education should be emphasized as a key component of periodontal care. Increasing awareness about early signs such as bleeding gums can encourage timely intervention and improve overall treatment outcomes (12).

Limitations:

The present study has certain limitations that should be considered while interpreting the findings. As a retrospective analysis, the study relied on previously recorded clinical data, which may be subject to variations in documentation and potential information bias. The accuracy of the results is dependent on the completeness and consistency of case records. Additionally, important factors such as oral hygiene practices, smoking status, systemic health conditions, and socioeconomic variables were not included in the analysis, all of which may influence both disease progression and patient perception. The study was conducted within a single institutional setting, which may limit the generalizability of the findings to a broader population. Future studies incorporating these variables and employing prospective designs may provide a more comprehensive understanding of the relationship between patient-reported symptoms and periodontal disease.

Conclusion

Within the limitations of this retrospective study, patient-reported chief complaints demonstrated an inconsistent correlation with clinical periodontal diagnosis, with many individuals exhibiting advanced disease despite presenting with mild or nonspecific symptoms such as bleeding gums and food lodgement. Thus, chief complaints alone are not reliable indicators of periodontal disease severity, underscoring the need for comprehensive clinical evaluation and routine screening to ensure accurate diagnosis and early management.

Conflict of Interest : nil

Funding : nil

References

1. Tonetti MS, Greenwell H, Kornman KS. Staging and grading of periodontitis: framework and proposal of a new classification. *J Periodontol.* 2020;91(Suppl 1):S159–72.
2. Papapanou PN, Sanz M, Buduneli N, Dietrich T, Feres M, Fine DH, et al. Periodontitis: consensus report of workgroup 2 of the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases. *J Clin Periodontol.* 2020;47(Suppl 22):S162–70.
3. Nazir MA. Prevalence of periodontal disease, its association with systemic diseases and prevention. *Int J Health Sci (Qassim).* 2020;14(2):72–80.
4. Eke PI, Thornton-Evans GO, Wei L, Borgnakke WS, Dye BA, Genco RJ. Periodontitis in US adults: National Health and Nutrition Examination Survey 2009–2014. *J Dent Res.* 2020;99(5):1–8.
5. Genco RJ, Borgnakke WS. Risk factors for periodontal disease. *Periodontol 2000.* 2020;83(1):7–13.
6. Chapple ILC, Mealey BL, Van Dyke TE, Bartold PM, Dommisch H, Eickholz P, et al. Periodontal health and gingival diseases and conditions on an intact periodontium. *J Clin Periodontol.* 2021;48(Suppl 21):S9–16.
7. Needleman I, McGrath C, Floyd P, Biddle A. Impact of oral health on the life quality of periodontal patients. *J Clin Periodontol.* 2021;48(3):454–62.
8. Borrell LN, Papapanou PN. Analytical epidemiology of periodontitis. *J Clin Periodontol.* 2021;48(4):456–64.
9. Kumar S. Evidence-based update on diagnosis and management of gingivitis and periodontitis. *Dent Clin North Am.* 2022;66(1):69–81.
10. Petersen PE, Ogawa H. Strengthening prevention of periodontal disease: the WHO approach. *J Periodontol.* 2022;93(3):267–75.
11. Vinchurkar U, Piludariya AG, Modi PR, et al. Correlation of demographic variables and risk factors with severity of periodontitis. *Int J Community Med Public Health.* 2023;10(3):1108–11.
12. Kaur P, et al. Awareness of periodontal treatment modalities among dental patients: a cross-sectional study. *J Public Health Dent.* 2023;83(4):345–52.
13. Radu CM, et al. Patient awareness and recognition of early signs of periodontal disease. *J Clin Med.* 2025;14(2):1–10.
14. Wang P, Gao L, Ning Y, et al. Chief complaint-based clinical reasoning in periodontal education. *Int Dent J.* 2025;75(2):1302–10.
15. Soundarajan S, Malaippan S, Gajendran PL. Relationship between chief complaints and periodontal disease severity. *World J Dent.* 2020;11(5):396–401.