



Self-Assessment Of Periodontal Health Status With Clinical Correlation: A Cross Sectional Survey

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Abstract

Introduction: Periodontitis affects a large number of people worldwide and is largely preventable. However, many people are unaware about the early signs of periodontitis which leads to more severe symptoms at a later stage and may result in tooth loss due to loss of attachment.

Objective: To assess the awareness and knowledge about periodontal health and disease in patients using self-reported questions and its clinical correlation.

Methodology: A self-prepared questionnaire of 10 questions was given to 104 patients regarding their periodontal health status. Oral examination was done and OHI-S (Green & Vermillion, 1964), GI (Loe. H and Silness J, 1964), modified SBI (Mombelli et al, 1987), presence of halitosis, gingival enlargement, exudation, mobility and gingival recession were assessed. The patient responses were correlated with the corresponding clinical examination and descriptive analysis was performed to obtain the results.

Results: Although 54% individuals reported their oral health to be normal or good, more than 30% of discrepancy was found between patient self-assessment and clinical examination of gingival inflammation, mobility, enlargement, exudation and recession.

Conclusion: Around 55% of patients were unaware about their periodontal health status. Thus, there is a dire need for creating awareness about periodontal diseases in the general population.

Keywords: NIL

Introduction

Periodontal diseases affect both developed and developing countries and constitute about 20-50% of the global population. High prevalence of periodontal disease in adolescents, adults and older individuals make it a public health concern.¹ Untreated periodontitis is a major cause of tooth loss/edentulism and contributes to poor quality of life. It is important to enhance the awareness regarding periodontal health and the early diagnosis of periodontal disease for early intervention.

Diagnosis of periodontal disease requires a complete periodontal examination which is a time-consuming and resource-demanding process as qualified examiners are necessary to perform the diagnostic procedure. In non-clinical settings, there is a need to employ more rapid, user-friendly and low-cost detection methods.²

Self-reporting of oral health status offers an opportunity to measure oral health in populations and

groups in a way that many people could find more acceptable than undergoing a clinical examination, at a fraction of the cost of undertaking traditional epidemiological dental examinations and with potentially less bias. It could also offer a simple way of determining periodontal health in a local population or a way of monitoring targets for periodontal health.³ It would facilitate epidemiological studies of periodontal disease on a much larger scale than is feasible with the present clinical measures, specifically in developing countries like India.⁴

A patient aware of his/her oral conditions is more likely to seek clinical dental care and to adhere more firmly to it.⁵ Patient's behaviour is affected not only by the treatment he seeks, but also by oral health-related perceptions and cultural beliefs. Also, clinical correlation would help to assess the patients' awareness regarding periodontal health problems and advocacy of an appropriate treatment plan.⁶

Hence this study aimed to assess the awareness and knowledge about periodontal health and disease in patients using self-reported questions and corroborate with clinical correlation.

Materials & Method

This cross-sectional survey was carried out on the general population in and around Udaipur city that reported to the outpatient department of the Department of Periodontics, Pacific Dental College and Hospital, Udaipur. A total of 104 patients were assessed first by asking questions about their periodontal health followed by correlation by clinical examination. The questions were dichotomous in which the patients had to answer 'yes' or 'no' except for one in which they had to rate their periodontal health as very poor, poor, normal, good, or excellent. Additional questions regarding their dental hospital/clinic visit, tooth brushing habits such as type, method and frequency were also asked.

The questions asked were:

1. How would you define your periodontal health?
2. Are you aware of periodontitis/gingivitis?
3. Do your gums bleed while brushing or eating?
4. Do you experience bad breath while talking?

5. Do you notice discoloration/redness in your gums?
6. Do you notice deposits building up around your teeth?
7. Do you notice loosening of your teeth?
8. Do you notice swelling in your gums?
9. Do you notice any discharge coming from your gums?
10. Do you notice your gums receding?

The questions were asked by the examiner using the local language that was well understood by the patients. The same examiner then performed the clinical examination and OHI-S (Green & Vermillion, 1964), GI (Loe and Silness, 1964), modified SBI (Mombelli et al, 1987) were recorded. Presence of halitosis, gingival enlargement, exudation, mobility and gingival recession were assessed. The patient responses were correlated with the corresponding clinical examination and descriptive analysis was performed to obtain the results.

Results

The result of this study provided a wide range of data regarding the knowledge and existence of periodontal disease in the general population. In total 104 patients participated in this study. The patient's age ranged from 17-73 years among which 61.5% were males and 38.5% were females. 68.3% patients reported to have visited a dental hospital/clinic for the first time whereas 31.7% had previously visited one. When asked about their tooth brushing habits 34.6% used a hard bristle toothbrush, 51% medium bristle and only 14.4% used a soft bristle toothbrush. 73.1% brushed their teeth once daily whereas only 19.2% patients brushed twice daily.

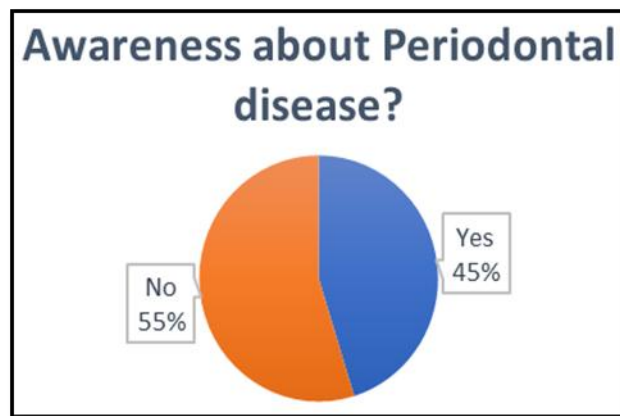
Awareness regarding periodontal disease was seen only in 45% of the patients. When asked to define their periodontal health, 55% defined it as normal, 27% defined it as poor and 18% as very poor. On clinical examination, the presence of periodontal disease was found to be mild in 11%, moderate in 65% and severe in 24% of the patients.

When asked for presence of deposits, bleeding and redness the percentage of patients that responded yes were 93.3%, 40.4% and 50% respectively. The

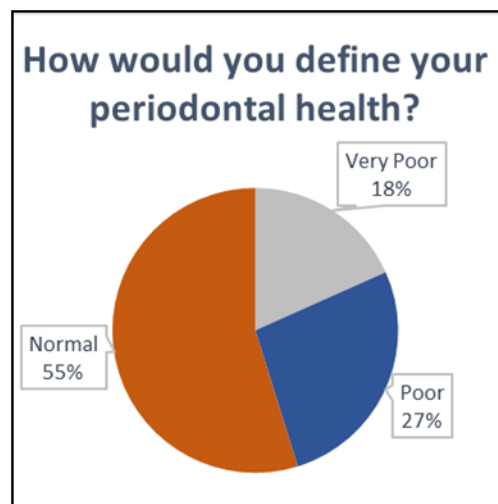
clinical examination of these parameters was done using OHI-S (Green & Vermillion, 1964), GI (Loe. H and Silness J, 1964) and modified SBI (Mombelli *et al*, 1987). The OHI-S scores were found to be good in 14.2%, fair in 41.3% and poor in 7.69% of the patients. The GI scores were mild in 7.69%, moderate in 77.8% and severe in 14.42% if the patients. The mSBI scores were initial in 10.57%, moderate in 77.88% and severe in 12.5 % of patients. The correlation between the patients' responses and clinical parameters have been given in Table 1.

When asked for presence of bad breath 49% patients replied yes and clinically 78.8% patients showed presence of halitosis. Similarly, 12.5% reported yes for loosening of teeth while 23% presence of mobility was found clinically. 10.6% replied yes for enlargement while 47.1% showed presence of clinical enlargement. 2.9% responded yes for presence of discharge and 11.5% showed clinical presence of exudation. 19.2% patients reported to notice their gums receding whereas 56.7% of patients had presence of recession.

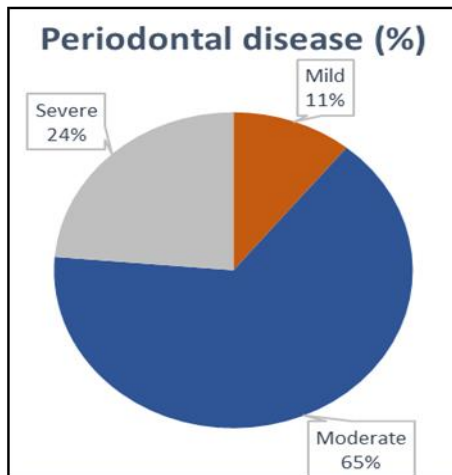
Graph 1: Percentage of patients aware regarding periodontal disease



Graph 2: Patient responses when asked to define periodontal health



Graph 3: Clinical presence of periodontal disease



Graph 4: Patient response VS Clinical corelation (%) for halitosis, mobility, enlargement, discharge and recession

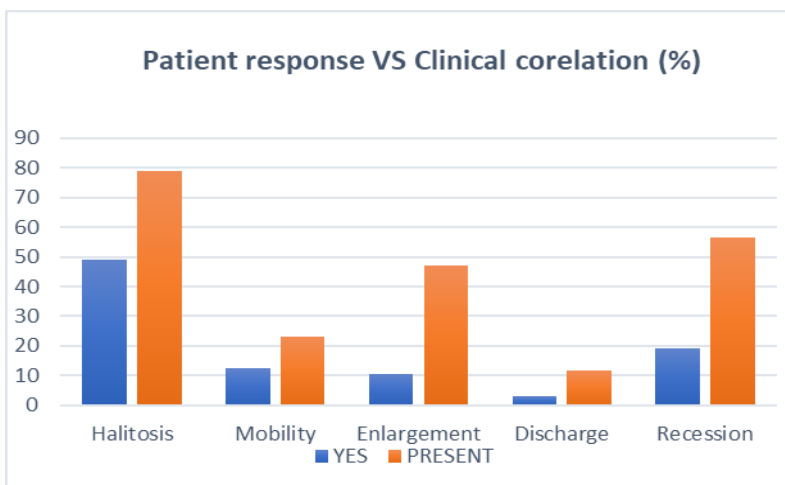


Table 1: Co-relation of patient responses with oral examination for deposits, redness and bleeding

Patient responses	Yes (%)	Oral examination	Percentage (%)
Deposits	93.3	OHI-S	Good: 14.42 Fair: 41.30 Poor: 44.24
Redness	40.4	GI	Mild: 7.69 Moderate: 77.88 Severe: 14.42
Bleeding	50	mSBI	Initial: 10.57 Moderate: 77.88 Severe: 12.50

Discussion

In India, oral health has been neglected for a long time. A significant amount of emphasis is needed for prevention of diseases rather than the treatment aspect. So, proper knowledge of preventive oral healthcare and proper oral hygiene measures is important for maintaining good dentition. This study was carried out to assess the awareness regarding periodontal problems and the importance of oral hygiene practices in the population. Only 45% of the population was aware regarding periodontal diseases and almost 68.3% patients had never visited a dental hospital/ clinic.

Tooth brushing is the most common oral hygiene practice worldwide. However, we found only a small fraction (19.2%) of the population brushing regularly twice daily and majority of them using a hard (34.6%) or a medium (51%) bristle toothbrush. **Zimmerman H et al (2015)**⁷ in his systematic review concluded that infrequent tooth brushing is statistically significantly associated with periodontitis.⁷ Thus we found the presence of moderate and severe periodontitis in 65% and 24% of the patients respectively owing to their infrequent brushing habits. However, 55% of the population felt their periodontal health was normal.

In a similar study **Gadde P et al (2019)**⁸ found that prevalence rate of periodontitis was 55.3% in the West Godavari population and poor knowledge regarding periodontal status was observed in patients above 45 years of age. In the present study, we found presence of moderate to severe periodontitis in about 65% and 24% of population respectively and awareness about the disease in only about 45 % of them, which was deemed to be quite poor.

Gingival bleeding is an early clinical sign of periodontal disease and a predetermining factor for existing periodontal infection. **Baser U et al (2014)**⁹ in his study found half of the included dental students could not differentiate whether they had gingival bleeding when there was actual bleeding which was similar to the present study in which only 50% of the patients were aware for the presence of bleeding and only 40.4% for the presence of redness.

The presence of halitosis is a subjective as well as an objective sign. **Umeizudike KA et al**¹⁰ (2016) in his

study found that about 50% of the patients perceived halitosis by themselves, 25% by family and friends, and 20% from presumed actions of people around them. In the present study, we found around 49% patients were aware regarding the presence of halitosis in their mouth.

Self-reported presence of tooth mobility is a significant predictor of periodontitis and its degree is associated with advanced stages of the disease. In the present study, 12.5% of the patients were aware regarding the presence of mobility which was almost similar to a study by **Azodo C et al (2014)**¹¹ who found that among the 154 participants studied in Midwestern Nigeria, 18.8% had clinical presence of tooth mobility.

Poor oral hygiene and improper oral hygiene practices leads to gingival recession which is a common undesirable condition. Owing to the use of hard bristle toothbrush by the patients as stated above, 56.7% of the patients had the presence of gingival recession. **Shetty A et al (2014)**¹² found that the presence of gingival recession was significant with type of toothbrushes used, method of brushing and duration of brushing and 83.3% of the study population was not aware of gingival recession and only 9.4% of them were aware of various causative factors for gingival recession.

It is important to note that the accuracy of data from a questionnaire-based survey are heavily influenced by population characteristics, such as cultural background, awareness, socio-economic status, and dental care utilization. The population included in the present study was region specific to people in and around Udaipur city and mostly belonged in a rural and semi urban setting. Hence such disparity in the self-reported and clinical examination of all the parameters is understandable.

Conclusion

In general, this study concluded that there was a lack of knowledge in the population regarding the periodontal problems existing in their oral cavity. Awareness regarding periodontal diseases was found in only 45% of the population whereas almost 89% of the population showed signs of moderate to severe periodontal symptoms. Furthermore, questionnaire based studies evaluating awareness and knowledge

with the use of more accurate clinical examination methods, covering a greater population base and a

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