**SAR Journal of Dentistry, Oral Surgery and Medicine**

Abbreviated Key Title: *SAR J Dent Oral Surg Med*
**Home page:** https://sarmedjournals.com

ISSN 2707-7772 (P)

**Original Research Article**

# Pre- and Post-Treatment Experiences of Fear, Anxiety, and Pain among Chronic Periodontitis Patients Treated by Ultrasonic Scaling Versus One-Stage Full-Mouth Disinfection among South Indian Population: A Questionnaire Study

**Dr. Krishna Kripal[2*], Dr. Shanmugapriya P.A[1], Dr.Aiswarya Dileep[1], Dr. Kavita.C[1], Dr. Lekshmi[1]**

[1]Post Graduate, Department of Periodontology, Raja Rajeswari Dental College and Hospital, Bangladesh
[2]Professor, Department of Periodontology, Raja Rajeswari Dental College and Hospital, Bangladesh

***Corresponding Author**
Dr. Krishna Kripal

**Article History:** | Received: 23.03.2021 | Accepted: 12.05.2021 | Published: 20.05.2021 |

**Abstract:** ***Introduction:*** The non-surgical periodontal therapy consists of ultrasonic scaling and full mouth disinfection. Ultra sonic scaling is conventionally done in weekly sessions, performed quadrant wise. The Full Mouth Disinfection approach aims to prevent re-infection of already treated periodontal sites by pathogens that reside on other sites and thus improve the effectiveness of non-surgical periodontal treatment. Anxiety, fear and pain experience represent significant problems in the dental practice and are significant factors that discourage the demand for treatment. Thus it interferes in the management of patients during dental treatment. ***Aim:*** To evaluate the clinical effects of two different forms of non-surgical periodontal therapy, ultrasonic scaling versus one-stage full-mouth disinfection to the patient based on questionnaire such as Dental Fear Survey, Dental Anxiety Scale and Visual Analogue Scale ***Materials And Methods:*** Dental Fear Survey and Dental Anxiety Scale questionnaires and Visual Analogue Scale were applied to 30 patients randomized into two groups. Group I consists of 15 patients who underwent ultrasonic scaling; Group II consists of 15 patients who underwent one stage full mouth disinfection. Periodontal clinical parameters were monitored at baseline and after 4 weeks of treatment. ***Results:*** All the clinical parameters are found to be statistically significant results in the FMD group. There was no significant differences between treatment groups with respect to gender, age, income and socioeconomic status**.** ***Conclusion:*** It is concluded that FMD group showed better improvements in clinical parameters when compared to ultrasonic scaling group, but didn't show any difference with respect to fear, anxiety and pain experiences.

**Keywords:** dental fear, dental anxiety.



## INTRODUCTION

Dental anxiety or stress in a dental setting. Being scared to visit the dentist can result in delaying or avoiding dental treatment. Dental anxiety can be associated with certain triggers such as needles, drills or the dental setting in general, it also shares similar characteristics with many clinical anxiety disorders, and this is especially the case with other specific fears and phobias. These often debilitating conditions comprise several different dimensions, including cognitive, emotional, behavioural and physiological components.

In addition, dental anxiety and fear are associated with a range of aversive health consequences. A number of indices have been developed to measure dental anxiety and fear. The most popular measures of dental anxiety and fear lack adequate or sufficiently explained theoretical foundations. This is of concern given that these scales, by their very nature, serve to define the concept they aim to measure.

The Dental Fear Survey (DFS), a paper and pencil instrument for assessing dental fear and avoidance has been widely used and validated in fear

studies. However, before such instruments are used in countries and cultures dissimilar to the one in which it was developed, they should be cross validated in that culture.

The present study is an examination of the DFS response characteristics in a group of south Indian population**.** The conventional PD treatment strategy was re-evaluated in the early 1990s when the Full-Mouth Disinfection (FMD) concept was introduced. The principle of FMD is based on the scaling and of all areas and the treatment of all oral niches in two visits within 24 hours.

The aims of the FMD approach are twofold: first, to avoid the potential rapid translocation of periodontal pathogens; and second, to prevent the reinfection of previously treated sites by untreated pockets or by other intraoral niches. The original FMD protocol begins with motivating and instructing the patient in good oral hygiene techniques. The protocol proceeds as follows: a) scaling and root planning of all teeth under local anaesthesia during a 24 hour period spanning two consecutive days; b) brushing the back of the tongue with 1% Chlorhexidine (CHX) gel for a period of 1 minute; c) washing the mouth twice with 10 mL of 0.2% CHX for 1 minute, with gargling for the final 10 seconds; and d) performing the sub gingival irrigation of all pockets with 1% CHX gel 3 times for 10 minutes each using a graduated syringe set at 6 and 8 mm immediately after each of the 2 sessions and 8 days later. At home, the patient is to comply with the recommendations of the dental practitioner (for 2 weeks, the patient is to wash the mouth twice daily with 10 mL of 0.2% CHX and use brushing aids) .

## AIMS AND OBJECTIVE

**Aim:**

To evaluate the clinical effects of two different forms of non-surgical periodontal therapy, ultrasonic scaling versus one-stage full-mouth disinfection to the patient based questionnaire such as fear, anxiety, and pain among mild to moderate chronic periodontitis patients.

## METHODOLOGY

This is a Cross sectional questionnaire based study conducted to evaluate the clinical effects of two different forms of non-surgical periodontal therapy, ultrasonic scaling versus one-stage full-mouth disinfection to the patient based on their fear, anxiety, and pain among mild to moderate chronic periodontitis patients.

**Patient Selection:**

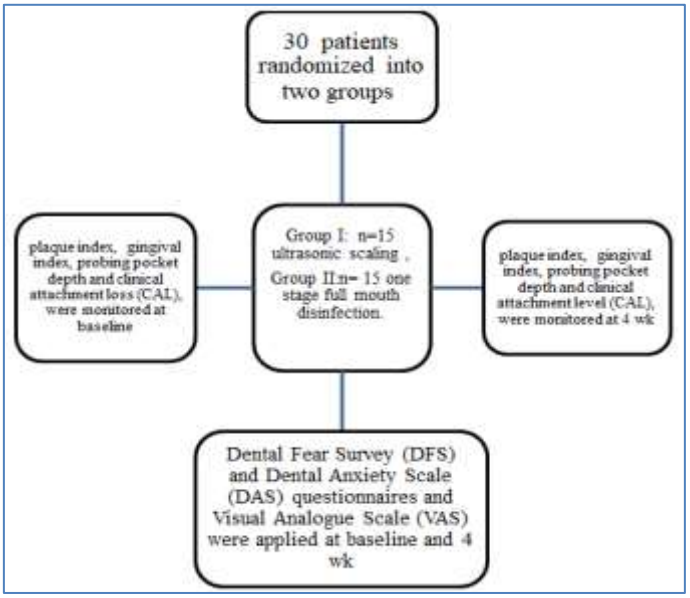
A total of 30 patients (age range: 30 - 60 years) were randomly allocated by using coin toss method from the Department of Periodontology, RAJARAJESWARI DENTALCOLLEGE AND HOSPITAL, Bangalore. Subjects were explained about the study and based on their approval, written informed consent was taken after being advised about the nature of the study according to a protocol.

Dental Fear Survey (DFS) and Dental Anxiety Scale (DAS) questionnaires and Visual Analogue Scale (VAS) were applied to 30 patients who were randomized into two groups.

**Group I:** 15 patients on ultrasonic scaling,
**Group II:** 15 patients on one stage full mouth disinfection.

Periodontal clinical parameters viz: plaque index, gingival index, probing pocket depth and clinical attachment loss (CAL), were monitored at baseline and after 4 weeks of treatment in each group.

**FLOWCHART**



**Inclusion Criteria:**

1) Patients diagnosis with mild to moderate chronic periodontitis.
2) Patients aged 35–60 years old.
3) Presence of at least 18 natural teeth

**Exclusion Criteria:**

1) Those who were in a regular use of antibiotics or anti-inflammatory drugs, within 3 months preceding the start of the study;
2) Those who were making regular use (twice a day) of mouthwashes, within 3 months prior to study entry.
3) Patients with a history of sensitivity to chlorhexidine;
4) Patients undergoing periodontal therapy including; dental scaling and root planing procedures in the 12 months preceding the start of the study.

**Clinical Periodontal Examination:**

The following parameters were assessed at six sites per tooth

1) Gingival index (GI) (Loe and Sillness, 1963)
2) Plaque index (PI)
3) Probing depth (PD)
4) Clinical attachment level (CAL)

**Statistical Analysis:**

Statistical Package for Social Sciences [SPSS] for Windows, Version 22.0.Released in 2013. Armonk, NY: IBM Corp was used to perform statistical analyses.

**Descriptive Statistics:**

Descriptive analysis includes expression of all explanatory and Outcome parameters in terms of Mean & SD for continuous variables, whereas in terms of frequency and proportions for categorical variables.

**Inferential Statistics:**

- Independent Student t Test was used to compare the mean values of different clinical parameters and dental fear scores between 2 groups during baseline and 4 weeks period.
- Student Paired t Test was used to compare the mean values of different clinical parameters and dental fear scores between Baseline & 4 weeks in each study group.
- Mann Whitney Test was used to compare the mean VAS scores between 2 groups at Baseline and 4 weeks period.
- Wilcoxon Signed Rank Test was used to compare the mean VAS scores between Baseline and 4 weeks period in each study group.
- Chi Square Test was used to compare the Dental Anxiety levels between 2 groups at baseline & 4 weeks period.
- The level of significance [P-Value] was set at P<0.05.

## RESULTS

The present study consists of 19 males and 11 females with mean age of 45.93 years. There was no significant differences between treatment groups with respect to gender, age, income and socioeconomic status. All the clinical parameters are found to be statistically significant results in the FMD group when compared to the ultrasonic scaling group irrespective of the treatment modalities.

**Table-1: Shows the Comparison of Mean Values Of Different Clinical Parameters between Baseline And 4 Weeks in Group 2 Using Student Paired T Test. Plaque Index, Gingival Index, Periodontal Probing Depth and Clinical Attachment Level**

| Comparison of mean values of different clinical parameters between Baseline & 4 weeks in Group 2 using Student Paired t Test | | | | | | |
|---|---|---|---|---|---|---|
| Variables | Time | N | Mean | SD | Mean Diff | P-Value |
| PI | Baseline | 15 | 2.01 | 0.39 | 0.67 | <0.001* |
| | 4 weeks | 15 | 1.34 | 0.35 | | |
| GI | Baseline | 15 | 2.02 | 0.50 | 0.95 | <0.001* |
| | 4 weeks | 15 | 1.07 | 0.50 | | |
| PD | Baseline | 15 | 6.12 | 0.58 | 1.23 | <0.001* |
| | 4 weeks | 15 | 4.89 | 0.62 | | |
| CAL | Baseline | 15 | 6.14 | 0.59 | 1.25 | <0.001* |
| | 4 weeks | 15 | 4.89 | 0.65 | | |

**Table-2: Shows the Comparison of Mean Values Of Different Clinical Parameters between Baseline And 4 Weeks in Group 1 Using Student Paired T Test Shows Statistically Significant Among Plaque Index, Gingival Index, Periodontal Probing Depth and Clinical Attachment Level**

| Comparison of mean values of different clinical parameters between Baseline & 4 weeks in Group 1 using Student Paired t Test | | | | | | |
|---|---|---|---|---|---|---|
| Variables | Time | N | Mean | SD | Mean Diff | P-Value |
| PI | Baseline | 15 | 1.91 | 0.37 | 0.33 | <0.001* |
| | 4 weeks | 15 | 1.58 | 0.36 | | |
| GI | Baseline | 15 | 2.04 | 0.43 | 0.30 | <0.001* |
| | 4 weeks | 15 | 1.74 | 0.36 | | |
| PD | Baseline | 15 | 5.80 | 0.69 | 0.41 | <0.001* |
| | 4 weeks | 15 | 5.39 | 0.64 | | |
| CAL | Baseline | 15 | 5.87 | 0.71 | 0.47 | <0.001* |
| | 4 weeks | 15 | 5.40 | 0.71 | | |

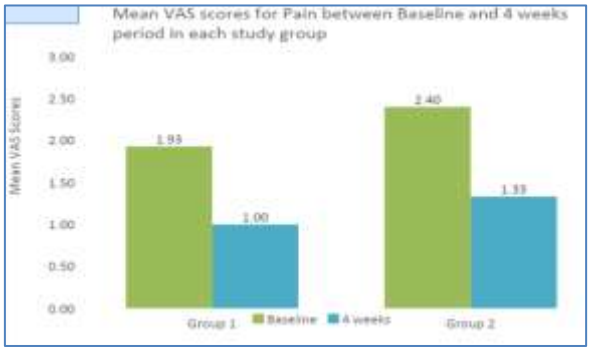
**Table-3: Shows The Comparison Of Mean Visual Analogue Scale Between Baseline And 4 Weeks Period In Each Study Using Wilcoxon Signed Rank Test; It Is Proved Statistically Significant In Group 2 Between Baseline And 4 Weeks.**

| Comparison of mean VAS scores between Baseline and 4 weeks period in each study group using Wilcoxon Signed Rank Test | | | | | | |
|---|---|---|---|---|---|---|
| Groups | Time | N | Mean | SD | Mean Diff | P-Value |
| Group 1 | Baseline | 15 | 1.93 | 0.88 | 0.93 | 0.002* |
| | 4 weeks | 15 | 1.00 | 0.93 | | |
| Group 2 | Baseline | 15 | 2.40 | 0.91 | 1.07 | 0.003* |
| | 4 weeks | 15 | 1.33 | 0.62 | | |

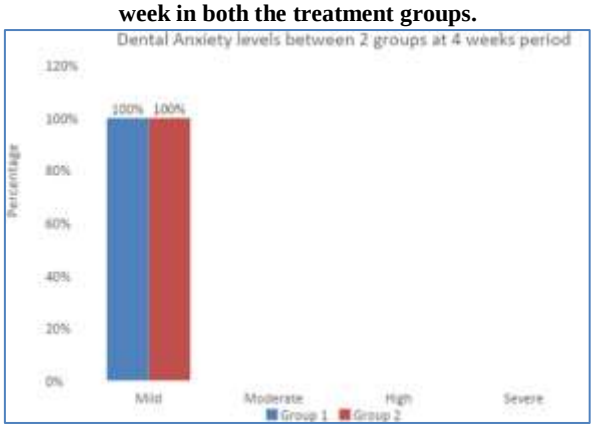
**Table-4: Shows Of Mean Values of Dental Fear Score between Baseline and 4weeks Period in Each Study Group Using Student Paired T Test .The Group 2 Were Statistically Significant from Baseline To 4weeks.**

| Comparison of mean Dental Fear scores between Baseline and 4 weeks period in each study group using Student Paired t Test | | | | | | |
|---|---|---|---|---|---|---|
| Groups | Time | N | Mean | SD | Mean Diff | P-Value |
| Group 1 | Baseline | 15 | 12.93 | 2.12 | 1.40 | 0.004* |
| | 4 weeks | 15 | 11.53 | 1.51 | | |
| Group 2 | Baseline | 15 | 12.13 | 1.81 | 1.13 | 0.006* |
| | 4 weeks | 15 | 11.00 | 1.46 | | |

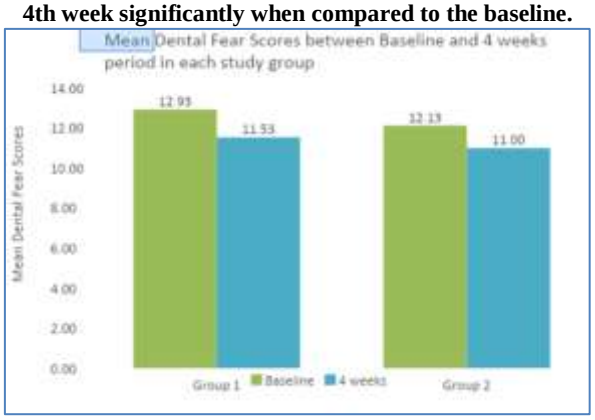
**Graph-1: Shows visual analogue scale scores for pain between baseline and 4 weeks period in each study group. The group 2 values were statistically significant from baseline to 4 weeks**




**Graph-2: Shows dental anxiety levels between group 1 and group 2 at 4weeks. It shows mild anxiety level at the 4 week in both the treatment groups.**




**Graph-3: Shows mean dental fear scores between baseline and 4 weeks periods in each study group .The Group 2 values were statistically significant from baseline to 4 weeks interval. The fear level in Group 2 has reduced at 4th week significantly when compared to the baseline.**




## DISCUSSION

The results of this cross sectional questionnaire based study showed ultrasonic scaling and FMD protocols individually were equally effective on improving clinical periodontal conditions and did not show any difference in fear, anxiety and pain.

Several studies have been conducted to evaluated the degree of anxiety and fear in relation to dental treatment (Johannsen et al., 2005, et al., 2006, Armfield et al., 2009, Armfield 2013), as well as pain experience by individuals.

Studies conducted by various authors (Kent et al., 1996, Ng & Leung2008, Armfield 2013) have found that patients remains reluctant to dental treatment due to the psychological factors such as fear, anxiety and pain.

The results of our questionnaire study showed that FMD and ultrasonic scaling groups are equally effective in improving clinical parameters with better improvement seen in FMD group.

It is important to emphasize that,since the literature indicated that non-surgical periodontal therapy,either by SRP or FMD, produced similar clinical results (Bollen et al., 1998, Eberhard et al., 2008, Swierkot et al., 2009).

The hypotheses FMD protocol could generate greater anxiety, fear, and pain, resulting from the fact that all procedures are carried out in 24 h.

However, these hypotheses were rejected because both non-surgical periodontal treatment protocols were similar in relation to anxiety, fear, and pain.

Furthermore, the severity of periodontal clinical parameters did not influence the DAS and DFS scores.

## CONCLUSION

Therefore from the present questionnaire study, it is concluded that FMD group showed better improvements in clinical parameters when compared to ultrasonic scaling group, but didn't show any difference with respect to fear, anxiety and pain experiences.

## REFERENCES

1. Armfield, J. M. (2010). How do we measure dental fear and what are we measuring anyway? Oral health & preventive dentistry, 8(2).
2. Cesar, J., de Moraes, A. B. A., Milgrom, P., & Kleinknecht, R. A. (1993). Cross validation of a Brazilian version of the Dental Fear Survey. Community Dentistry and Oral Epidemiology, 21(3), 148-150.
3. Karadottir, H., Lenoir, L., Barbierato, B., Bogle, M., Riggs, M., Sigurdsson, T., & Egelberg, J. (2002). Pain experienced by patients during periodontal maintenance treatment. Journal of periodontology, 73(5), 536-542.
4. Hassan, M. A., Bogle, G., Quishenbery, M., Stephens, D., Riggs, M., & Egelberg, J. (2005). Pain experienced by patients during periodontal recall examination using thinner versus thicker probes. Journal of periodontology, 76(6), 980-984.

5. Dental Fear Survey: (2014). A Cross-Sectional Study Evaluating the Psychometric Properties of the Brazilian Portuguese Version. Mauricio Antonio oliveira, MiriamPimentaVale CristianeBaccinBendo. The Scientific World Journal, Article ID 725323, 7 pages.
6. White, A. M., Giblin, L., & Boyd, L. D. (2017). The prevalence of dental anxiety in dental practice settings. American Dental Hygienists' Association, 91(1), 30-34.
7. Armfield, J. M., Slade, G. D., & Spencer, A. J. (2009). Dental fear and adult oral health in Australia. Community Dentistry and Oral Epidemiology, 37(3), 220-230.
8. Jowett, A. K., Orr, M. T., Rawlinson, A., & Robinson, P. G. (2009). Psychosocial impact of periodontal disease and its treatment with 24-h root surface debridement. Journal of clinical periodontology, 36(5), 413-418.