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# Non- surgical periodontal therapy improves oral health-related quality of life (OHRQoL)

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## Rationale:

Chronic periodontitis is one of the most common chronic diseases and is associated with multiple systemic diseases (Cullinan and Seymour, 2013, Linden et al., 2013). Recent epidemiologic studies have shown that more than half of the adult population is affected by periodontitis (Zhang et al., 2014, Eke et al., 2015, Eke et al., 2012a) and that 11.2% of the global population suffers from severe periodontitis (Kassebaum et al., 2014), disproportionaly affecting older adults.

Chronic periodontitis can destroy periodontal tissues and result in the loss of connective tissue attachment, loss of alveolar bone, and formation of pathological pockets around affected teeth (Highfield, 2009).

Patient-reported outcomes (PROs) were identified as a research priority at the 2003 World Workshop on Emerging Science in Periodontology (Tonetti et al., 2004). Assessment of PROs is important in periodontal therapy, as patients' opinions may diverge from traditional clinical endpoints (Ng and Leung, 2006). Oral health-related quality of life (OHRQoL) is a PRO, that reflects an integral aspect of general health and well-being (John et al., 2004).

Public health policy makers require strong scientific evidence utilizing PRO to improve the targeting of resources to the most cost-effective interventions. Thus, the objective of this study is to evaluate the impact of non-surgical periodontal therapy on oral health-related quality of life (OHRQoL) and to identify relevant variables affecting the impact of periodontal interventions on OHRQoL.

## Objective:

Evaluate the impact that periodontitis and non-surgical periodontal treatment have on OHRQoL. Additionally, identify patient-related variables that affect OHRQoL and the effect of non-surgical periodontal treatment on it.

## Methods:

This was a pilot community interventional pretest/posttest study in Chilean adults attending a primary health care government facility in Cerro Navia (Santiago, Chile). Patients with periodontitis were assessed for their perceptions of oral health by using OHIP-CP (Songlin He et al, 2017) before initial periodontal therapy and 1- 3 months follow-up. The questionnaire had 18-items and a three-domain structure: 'pain and functional limitation', 'psychological discomfort' and 'psychological disability and social handicap'.
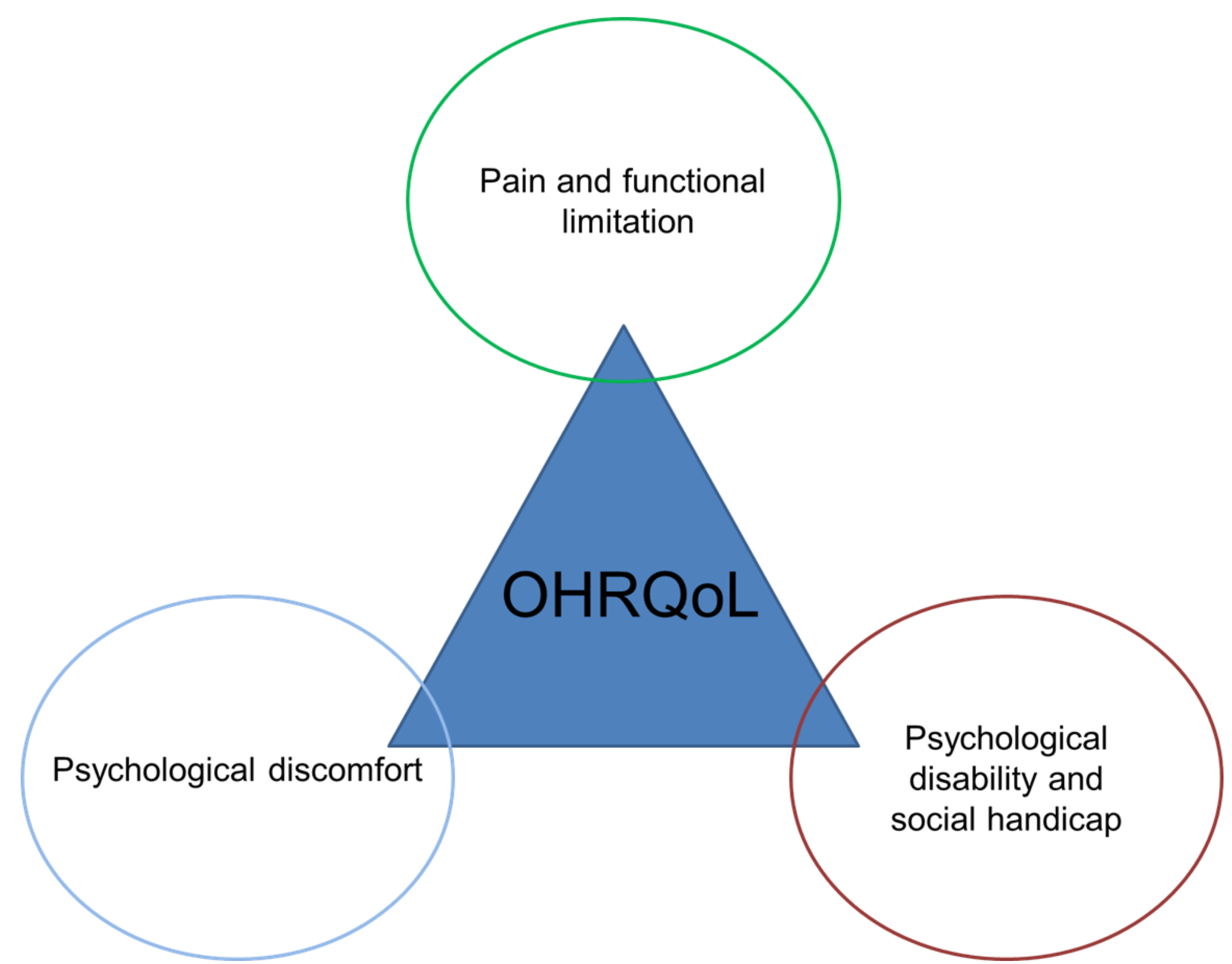
All periodontal examinations and periodontal treatment in this study were performed by a single clinician (A.A.) who had previously been trained, calibrated and tested for accuracy and reproducibility. All teeth, including third molars were carefully examined. Periodontal examination included periodontal pocket depth (PD), loss of attachment (AL) and bleeding on probing (BOP), assessed at six sites per tooth. Non-surgical periodontal therapy consisted in oral hygiene instructions and quadrant-wise scaling and root planning performed with hand and ultrasonic instruments in 4 consecutive sessions of 30 minutes each.

Patients responded in writing the OHIP-CP before the initial examination and 1- 3-months post-periodontal treatment. The questionnaire was explained to each participant, who were free to ask as many questions necessary during its completion. Answers were later transcribed to an electronic database for analysis.

Questionnaires data was tabulated and analyzed for significant differences by two-sample Wilcoxon rank-sum test and one-way analysis of variance by ranks in Stata 14 statistical software package. P<0.05 was considered statistically significant difference.

| Gender | Frequency | Percent | Cumultive % |
|--------|-----------|---------|-------------|
| Female | 49 | 71.01 | 71.01 |
| Male | 20 | 28.99 | 100 |



| Missing teeth | Frequency | Percent | Cumultive % |
|---------------|-----------|---------|-------------|
| 0 | 2 | 2.9 | 2.9 |
| 1 to 5 | 17 | 24.64 | 27.54 |
| 6 to 10 | 17 | 24.64 | 52.17 |
| 11 to 15 | 9 | 13.04 | 65.22 |
| 16 to 20 | 14 | 20.29 | 85.51 |
| 21 to 25 | 4 | 5.8 | 91.3 |
| ≥26 | 6 | 8.7 | 100 |

## Results:

A total of 69 patients (mean age: 54.2 years; 20 male and 49 female) participated in the study and completed treatment and follow up. At baseline, median OHIP-CP score was 24.

Smokers presented higher OHIP-CP score in component "pain and functional limitation" and "psychological discomfort" than non-smokers (p= 0.020 and p= 0.0370, respectively).

Patients who lost 21-25 teeth reported higher OHIP-CP in "psychological disability and social handicap" than those who lost 6-10 teeth or less (p=0.0011).

Initial periodontal therapy, significantly improved OHIP-CP scores at 1- and 3-months follow-up (p<0.000).

At 1- and 3-months follow-up, smokers presented lower OHIP-CP score improvement in "pain and functional limitation" than non-smokers (p=0.0158).

At 3 months, subjects who lost 6-10 teeth, presented a higher OHIP-CP score improvement in "psychological disability and social handicap" than those who lost 21-25 teeth or more (p= 0.0011)

| Time | Mean OHIP-CP score | sd | p-value (to baseline) |
|------|--------------------|-----|----------------------|
| Baseline | 25.2 | 11.6 | |
| 1-month | 18.3 | 10.9 | <0.000 |
| 3-months | 15.8 | 9.7 | <0.000 |

| Age (years) | Frequency | Percent | Cumultive % |
|-------------|-----------|---------|-------------|
| <30 | 3 | 4.35 | 4.35 |
| 30-39 | 4 | 5.8 | 10.14 |
| 40-49 | 21 | 30.43 | 40.58 |
| 50-59 | 19 | 27.54 | 68.12 |
| 60-69 | 11 | 15.94 | 84.06 |
| ≥70 | 11 | 15.94 | 100 |