

## **2311 Multilevel analysis of periodontal treatment response**

[M.C.M. WONG](#)<sup>1</sup>, L.J. JIN<sup>1</sup>, G. KOSHY<sup>1</sup>, E.F. CORBET<sup>1</sup>, and W.K. LEUNG<sup>2</sup>, <sup>1</sup>The University of Hong Kong, Hong Kong, <sup>2</sup>The University of Hong Kong, Hong Kong SAR, Hong Kong

In order to account for the hierarchical structure of periodontal disease measurements, i.e. sites measurements clustered within teeth and then teeth clustered within individuals, analysis using a multilevel approach is required.

**Objective:** The aim of this paper was to investigate baseline factors which may predict non-surgical periodontal treatment response using multilevel multiple regression. **Methods:** 32 non-smoking, chronic periodontitis patients participated in a single-blinded, randomised controlled clinical trial of non-surgical periodontal treatment protocols. 6-month reduction in probing pocket depth (PPD) of 4680 sites distributed on 806 teeth in these 32 patients was analysed by a multilevel approach. A 3-level model was considered: site at level-1, tooth at level-2 and subject at level-3. 12 independent predictor variables, 8 on subject-level, 1 on tooth-level and 3 on site-level were included in the multilevel multiple regression. The analysis was performed using the software MLwiN version 1.1. **Results:** Significant variations existed at all three levels of the multilevel structure ( $p < 0.001$ ). Multilevel multiple regression showed that 3 predictors on subject-level, 1 on tooth-level and 2 on site-level were significantly associated with 6-month reduction in PPD ( $p < 0.001$ ). Female subjects, subjects with higher % bleeding sites at baseline, subjects with lower % sites with plaque at baseline, non-molar teeth, sites with deeper PPD at baseline and sites with fewer occasions of bleeding during the study were associated with greater 6-month reduction in PPD. The variations at each level were reduced markedly with the inclusion of the 6 predictors in the multilevel multiple regression (subject: 79%, tooth: 27%, site: 46%). **Conclusion:** The use of multilevel analysis enables researchers to incorporate predictor variables measured at different levels in the same model. Multilevel analysis appears to be a powerful statistical tool for the analysis of periodontal data. E-mail: [mcmwong@hkucc.hku.hk](mailto:mcmwong@hkucc.hku.hk)

[Seq #209 - Re-evaluation of Traditional Periodontal Therapy](#)

11:00 AM-12:15 PM, Friday, 8 March 2002 San Diego Convention Center Exhibit Hall C

[Back to the Periodontal Research - Therapy Program](#)

[Back to the IADR/AADR/CADR 80th General Session \(March 6-9, 2002\)](#)