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# Tobacco Smoking and Periodontal Health in a Saudi Arabian Population

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**Background:** The objective of this study was to examine the association between tobacco smoking, in particular water pipe smoking, and periodontal health.

**Methods:** A total of 262 citizens of Jeddah, Saudi Arabia in the age range from 17 to 60 years volunteered to participate in the study. The clinical examinations were carried out at King Faisal Specialty Hospital and Research Center in Jeddah and included assessments of oral hygiene, gingival inflammation, and probing depth. Smoking behavior was registered through a questionnaire and confirmed by an interview. Participants were stratified into water pipe smokers (31%), cigarette smokers (19%), mixed smokers (20%), and non-smokers (30%).

**Results:** The mean probing depth per person was 3.1 mm for water pipe smokers, 3.0 mm for cigarette smokers, 2.8 mm for mixed smokers, and 2.3 mm for non-smokers. The association between smoking and probing depth was statistically significant controlling for age ( $P < 0.001$ ). The association between lifetime smoking exposure and mean probing depth was statistically significant in water pipe as well as cigarette smokers controlling for age ( $P < 0.001$ ). Using multivariate analysis, besides smoking, the gingival and plaque indexes were associated with increased probing depth. The prevalence of periodontal disease defined as a minimum of 10 sites with a probing depth  $\geq 5$  mm was 19.5% in the total population, 30% in water pipe smokers, 24% in cigarette smokers, and 8% in non-smokers. The prevalence was significantly greater in water pipe and cigarette smokers compared to non-smokers ( $P < 0.001$ ). The relative risk for periodontal disease increased by 5.1- and 3.8-fold in water pipe and cigarette smokers, respectively, compared to non-smokers ( $P < 0.001$  and  $P < 0.05$ , respectively).

**Conclusions:** An association was observed between water pipe smoking and periodontal disease manifestations in terms of probing depth measurements. The impact of water pipe smoking was of largely the same magnitude as that of cigarette smoking.

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