

**Evaluation of dental health and  
thickness of mandibular inferior  
cortex among menopa used Iraqi  
cigarette smokers sample by the  
aid of using digital panoramic  
radiography**

**A thesis**

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# Abstract

Background: Smoking is linked to osteoporosis through its anti-estrogenic effect in women which results in premature menopause in smokers and increased bone resorption is correlated with estrogen loss in women also, there is a relation between smoking and poor dental and oral health status as smokers are less likely to visit a dentist than non-smokers. Panoramic radiographic measurements are considered as indicators of bone turnover.

The Aim of the Study: To evaluate the effects of smoking and hormonal changes factors on the thickness of mandibular inferior cortex and the dentition status in both maxilla and mandible (decayed, missing, filled teeth)(DMFT) in menopausal females and to estimate the value of panoramic radiographic findings in assessing the possibility of latent osteoporosis.

Subjects and Methods : This study was conducted on 80 healthy, median stature Iraqi female subjects aged (20-35) years for premenopausal and (45-60) years for menopa used attending the Diagnosis Department /College of Dentistry /Baghdad University. Informations from each subject were recorded in a special case sheet and each subject was subjected to digital panoramic radiograph. The subjects were divided into four study groups: premenopausal non-smokers (N=20) with mean age (26.8) years, postmenopausal non-smokers (N=20) with mean age (52.9) years, postmenopausal mild smokers (N=20) with mean age (53.0) years and postmenopausal heavy smokers (N=20) with mean age (53.6) years. In each dental panoramic radiograph, the thickness of mandibular inferior cortex was

measured on both right and left sides of the mandible by using digital panoramic image measurement tools and then both clinical examination and digital panoramic radiograph were used to evaluate the dental health status for each tooth (DMFT) in both maxilla and mandible. The collected data were possessed and analyzed by using SPSS package program (version 13).

Results: The mean thickness of mandibular inferior cortex (MTMIC) was significantly lower (3.7mm) among postmenopausal non-smokers when compared to premenopausal study group (4.8mm) and there was a statistically highly significant inverse relation between menopausal status and MTMIC with (p-value < 0.001), the MTMIC was highest among nonsmokers (3.7mm) and was lowest among heavy smokers (3.0mm), while mild smokers had the MTMIC in between (3.3mm). The MTMIC showed a statistically significant moderately strong negative linear correlation with smoking habit magnitude with (p-value = 0.001). The mean DMFT was significantly higher among postmenopausal women (16.2) and lower among premenopausal women (11.0) and there was a statistically highly significant relation between DMFT and menopausal status with (p-value < 0.001). The mean DMFT was lowest among non-smokers (16.2), followed by mild smokers (19.0) and highest among heavy smokers (22.6) and the differences observed were statistically significant. There was a statistically significant moderately strong positive linear correlation between DMFT and smoking magnitude with (p-value = 0.001).

Conclusion: Dentists are able to identify postmenopausal females with increase risk of osteopenia and osteoporosis among smokers and nonsmokers by using dental panoramic radiography which is a simple valuable screening tool.