

DETERMINATION OF SMOKING STATUS AMONG THAI EMPLOYEES BY THE BEST EXHALED CARBON MONOXIDE CUT-OFF LEVEL AND ASSOCIATION WITH ORAL HEALTH CONDITIONS

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Abstract. Measurement of exhaled carbon monoxide (ECO) has been used worldwide to evaluate tobacco smoking but no reports among Thai people. The objectives of this study were to determine the best ECO cut-off level to predict tobacco smoking status, then using the best ECO cut-off level to assess the association between ECO cut-off level and oral health conditions among the same group of study subjects. The study sample comprised a total of 455 Thai industrial employees, aged 19-53 years, working in suburban Bangkok, Thailand during 2009-2010. Each participant was interviewed, had their ECO measured and had an oral cavity examined. We plotted a receiver operating characteristic curve and calculated the sensitivity, specificity, and descriptive statistics. We also conducted bivariate and multivariable logistic regression analyses to determine associations between an evaluated ECO level using a normal cut-off of 4 ppm and oral health conditions. Our results showed an ECO \geq 4 ppm was suggestive of tobacco smoking, with a sensitivity of 78.5% and a specificity of 86.8%. On multivariate logistic regression analysis, we found significant associations between an ECO level \geq 4 ppm and the following: heavy tooth debris deposits [adjusted Odds Ratio (aOR)=2.154; 95% confidence interval (95% CI):1.234-4.092], dental calculus with bleeding (aOR=3.22; 95% CI:1.156-8.989) and shallow periodontal pockets (aOR=1.278; 95% CI:1.066-1.534). Our results show a direct association between an ECO level \geq 4 ppm and conditions that precede periodontitis and an association with periodontitis.

Keywords: exhaled carbon monoxide, oral health conditions, industrial employees

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