

## **A cluster randomised controlled trial on effectiveness of carbon monoxide measurement feedback among college smoker : a study protocol**

### **ABSTRACT**

**Introduction:** For the last 30 years, tobacco smoking has continued to be the leading cause of premature deaths in Malaysia. Majority of the smokers in Malaysia are at the precontemplation and contemplation stages. Therefore, for the purpose of increasing smoking cessation among this group, the strategies that motivate them to quit smoking have to be reviewed.

**Objective:** This study aims to evaluate the effectiveness of carbon monoxide measurement feedback and the standard brief motivation adopted to encourage the smoker to quit.

**Methods:** A single-blind, cluster randomised controlled trial was conducted at ten tertiary colleges in Selangor. The study recruited young adult smokers at the precontemplation and contemplation stages. The subjects in the control group received a standard brief motivational strategy. On the other hand, the intervention group received additional carbon monoxide measurement and a motivational feedback module. A follow up was conducted at the first, third and sixth month to measure changes in smoking cessation stage. Subsequently, the secondary outcomes of a mean number of cigarette consumption and quit smoking attempt were analysed. A total of 160 subjects were required to detect the expected difference of 17% in primary outcomes between the groups. This study utilised Generalised Estimating Equations (GEE) to handle the clustering effects.

**Conclusion:** Biomedical risk assessment feedback mechanism by using carbon monoxide is a promising aid to motivate the smoker to quit. This mechanism is a relatively easy, quick and non-invasive technique. Thus, it can be utilised as a reinforcement relating to the harmful effect of smoking. Besides, it can also increase the smokers' selfefficacy and decisional balance to adopt behavioural changes.

**Keyword:** Smoking; Cessation; Motivation carbon monoxide; Transtheoretical model