

Effects of cognitive-behavioral education and exercise  
interventions on smoking cessation and physical and mental  
health in patients with coronary heart disease: Application of the  
transtheoretical model

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**A. Document type:**

Study Protocol with SAP.

**B. Background**

Smoking is a major risk factor of coronary artery disease (CAD) and is responsible for the death of one in three patients with cardiovascular diseases. Smoking cessation is one of the most favorable methods for reducing the risk of cardiovascular diseases; even for patients with a heart disease, quitting smoking can reduce the chance of a relapse of said disease. However, the Health Promotion Administration revealed that among male patients with acute myocardial infarction (AMI), 79.5% had smoked and 35.6% continued to smoke after an episode of AMI. Although previous studies confirmed that health education and exercises can increase smoking cessation rates, patients' lack of motivation to quit smoking has resulted in a failure rate of 65.5%. Therefore, identifying methods to strengthen patients' motivation to quit smoking is a key to successfully achieving smoking cessation.

## **C. Objective(s)**

The purpose of the study is to adopt the Trans-theoretical Model to facilitate step-by-step changes in a patient's smoking behavior and explore the effect of "Cognitive-Behavioral Education Course" and "Exercise Program" on Smoking cessation, physical health, and mental health of smokers with CAD.

## **D. Design and Methods**

There are three stages in our study, we will describe each stage as follow.

### **a. Stage 1:**

At this stage is a cross-sectional method and will be employed to investigate the relationship between smoking status and various physiological and psychological indicators in patients with CAD.

### **b. Stage 2:**

At stage 2, subjects who are at the smoking cessation stage of "precontemplation" and "contemplation" will be recruited in this stage. A quasi-experimental design will be used to determine the effects of a four-week cognitive-behavioral education course related to smoking cessation on the participants' smoking cessation behavior, smoking decision-making, and self-efficacy in smoking cessation.

c. Stage 3:

Subjects who are at the "preparation" and "action" stage will be recruited and randomly divided into experimental or control group to identify the effect of a 12-week brisk walking on improving the participants' immediate (short-term), three-month, and six month (long-term) health status. The primary indicator used for health status evaluation is smoking cessation success rate; the secondary indicators used are physiological status (i.e., nicotine addiction, lung carbon monoxide concentration, heart rate variability, and smoking withdrawal syndrome) and psychological status (i.e., depression and

resilience).

## **E. The statistical analysis**

SPSS for Window 24.0 software will be used in statistical analysis. The type one error is 0.05. In inferences analysis, chi-square test, Pearson correlation coefficient, independent t test, one-way ANOVA and post hoc comparison (scheffe) test will be used to examine the variance among groups. Finally, ANCOVA and GEE mode will be used to test the effectiveness of intervention respectively.