COMMITMENT CONTRACTS WITH SOCIAL INCENTIVES: A RANDOMIZED SMOKING CESSATION TRIAL IN RURAL THAILAND

Justin S. White[1], MA, MSPH; William H. Dow[1], PhD; Suthat Rungruanghiranya[2], MD; Tawima Sirirassamee[2], MD
[1] University of California, Berkeley, USA; [2] Srinakharinwirot University, Thailand

ABSTRACT

Tobacco use is a leading cause of death and chronic disease in Southeast Asia, yet smoking cessation programs are not widely available in the region. This study evaluates a novel behavioral intervention that aims to help smokers in rural communities to quit. Thailand is used as a test case. All participants received cessation counseling. In addition, the treatment group (1) made weekly financially deposits to be returned only if each person quit after 3 months, and (2) were assigned to a two-person group, with a cash bonus if both quit after 3 months. The randomized controlled trial recruited 215 smokers from 30 villages, about 10% of all smokers in the study area. Overall, 45% of the treatment group quit, compared to 19% of the control group. The effect size, larger than previously reported behavioral interventions, highlights the potential of a combination of financial and social incentives to modify health behavior.

EXTENDED ABSTRACT

Background

Tobacco use is the second leading cause of death and chronic disease in East Asia, yet smoking cessation programs are not widely available in the region. With few exceptions, smoking treatment programs are not available in rural parts of Southeast Asia. This study tests a novel, community-based intervention to promote smoking cessation in rural communities of Thailand. The pilot test explores if groups of smokers quit successfully after making financially-backed commitments and receiving cash incentives to work with a partner to quit. According to theory from psychology and economics, voluntary but binding financial commitments may help people to maintain self-control and overcome problems with temptation. The project adds to the commitment contract a social incentive scheme designed to promote cooperation and peer pressure among paired smokers. We hypothesize that a combination of financial and social incentives can outperform either force in isolation.

Thailand has a high demand for quitting relative to its neighbors, thanks in part to its implementation of a comprehensive package of tobacco policies over the past 20 years. Many other Asian countries, especially those in Southeast Asia, are starting to regulate tobacco in order to comply with the requirements of the World Health Organization's tobacco control treaty. We can expect that these efforts will spur an increased demand for quitting in the next decade, as they have in Western countries. Thailand's head start

on tobacco policy makes it an ideal setting for testing the present intervention, which relies on smokers who have a pre-existing desire to quit. If successful, the intervention might be well suited for replication and implementation in other parts of Southeast Asia.

Methods

The project recruited smokers from six subdistricts in Nakhon Nayok province in central Thailand. Village health workers recruited participants to attend a community-based enrollment meeting. In total, the project recruited 215 smokers from 30 villages, who were randomly assigned to the control group or the treatment group. All participants received education and group counseling from a trained smoking cessation counselor at enrollment and after 3 months. The treatment group received two additional components, the combination of which we call *group commitment*. First, the treatment group deposited at least 50 baht (USD 1.67) with the project at enrollment. For 10 weeks after enrollment, a village health worker made weekly visits to each treated participant to ask for additional, voluntary deposits. The participant had his deposits refunded only if he quit smoking 3 months after enrollment—this arrangement is called a *commitment contract*. Second, the participant was assigned another participant as a partner. If the person and his partner both quit smoking within 3 months, each received a cash bonus of 1,200 baht (USD 40), about 27% of monthly household income.

Smokers were tested for smoking abstinence 3 months and 6 months after enrollment using a urine cotinine test. Quitting was defined as both testing negative for cotinine and reporting 7-day abstinence, and is reported on an intention-to-treat basis.

Results

The project recruited 10% of all smokers in the 30 study villages. Baseline characteristics were balanced between treatment and control arms, indicating that the randomization was successful. Overall, 72 participants (36%) quit 6 months after enrollment—that is, 3 months after the incentives ended. However, 45% of the treatment group quit, compared to 19% of the control group. The average treatment effect of 26 percentage points is highly statistically significant ($p < 0.01$, n = 200).

Among the treatment group, median deposits over the 10-week deposit period were 220 baht, and 86% deposited more than the minimum required amount. The median quitter deposited 300 baht, far greater than 170 baht for the median continuing smoker ($p < 0.01$). Partners who conversed at least weekly about smoking-related topics were significantly more likely to quit after 6 months ($p < 0.02$), although geographical distance between partners' houses and social distance at baseline did not predict smoking abstinence.

Conclusions

This intervention offers broad scope for group behavior change in rural communities of Thailand and elsewhere. Many rural smokers were willing to take up the group contracts.

The combination of financial and social forces led to a high quit percentage, despite limited interaction with health professionals. Commitment contracts appear to be both an effective and cost-effective way to reach smokers in rural communities. Moreover, coordinated quit attempts of people living in the same community holds potential for altering the social norms around tobacco use within a community.

Tobacco is projected to cause 8.3 million deaths worldwide in 2030, 82% of which will occur in the developing world. A low-cost method for promoting cessation could have a large positive impact on population health, especially in developing countries that lack the resources to offer comprehensive clinical services for smoking treatment.

A next step of this research agenda will try to identify the relative contribution to quitting of financial commitment, social support, peer pressure, and a cash bonus.