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# Initial Evaluation of a Smoking Cessation Program Incorporating Physical Activity Promotion to Greek Adults in Antismoking Clinics

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## Abstract

The purpose of this study was to evaluate an initial application of a smoking cessation program that integrated the promotion of physical activity (PA) as a cessation aid to Greek adults in antismoking clinics. From an initial pool of 50, 12 men and 28 women from Central Greece completed the program,

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and 18 of them succeeded in quitting for 1 year after the program. Additionally, after the program, they increased their PA. Suggestions for future applications of the program are further discussed.

### Keywords

evaluation, physical activity, smoking cessation, counseling, Greek adults

## Introduction

Physical activity (PA) has been recommended as an aid to smoking cessation programs (McEwen, Hajek, McRobbie, & West, 2006). The literature suggests that there is a positive association between attempting to quit smoking and engagement in PA, according to a review which asserts that participation in regular PA satisfies eight of the principles characterizing a tobacco harm reduction strategy (deRuiter & Faulkner, 2006). In recent years, several studies recommend the use of PA as an additional strategy for smoking cessation programs (e.g., Ussher, West, Taylor, & McEwen, 2005). PA, when applied systematically and under guidance, can be effective for both smoking cessation and weight management (Taylor & Ussher, 2005). Moreover, smoking cessation rates were higher among those who were more physically active (Paavola, Vartianen, & Puska, 2001).

“No More Smoking! It’s Time for Physical Activity”:

### Program

#### Description

A program guide was developed by the Laboratory of Exercise Psychology and Quality of Life in the University of Thessaly Department of Physical Education and Sport Science. The aim of the smoking cessation program was twofold; first, to provide psychological support to quit smoking and second to motivate participants to increase their PA levels. The psychological support to quit intervention was based on established smoking cessation programs and guidelines from the American Cancer Society (American Cancer Society, 2010). In addition to this, treatment focused on the transtheoretical model of change (Prochaska & DiClemente, 1983), motivational interviewing (Miller & Rollnick, 2002), and cognitive behavior theory based on smoking cessation programs. Strategies focused on providing knowledge and information about smoking and health, analyzing reasons and ways to quit, changing smoking and unhealthy beliefs, changing attitudes and unhealthy habits, analyzing physical and affective symptoms,

coping with craving, stress management, managing mood and affect, relaxation techniques, and self-monitoring.

The procedure of promoting PA was incorporated into the counseling program using the principles of the goal-setting theory and its application on PA setting (Locke & Latham, 1990). The duration of the smoking cessation treatment was 10 weeks. The treatment was divided into 10 steps, one step per week, and lasted approximately 1 hr each. Two doctoral-level psychologists conducted the sessions. During the intervention meetings, participants were given written instructions on how to increase their daily PA. They completed goal-setting forms and log books to monitor their PA participation, by assessing the duration in minutes of PA and the intensity and the type of PA. More specifically, the first-week participants were instructed to increase their daily PA from 15 to 30 min of walking and to gradually increase its duration and intensity to approximately 20 min of jogging day to day. The second-week participants were prompted to gradually increase their PA to 40 min, by switching between jogging and walking. The third-week participants were taught how to realistically set short-term goals for their daily PA intensity and duration. Participants were also instructed to use pedometers and encouraged to choose from a broader variety of physical activities (bicycle, sports, etc.). The fourth- and fifth-week participants were taught how to set long-term goals for their physical activities and how to increase commitment to their goals. For the next 5 weeks, the counselors monitored the participants' PA. Additionally, they had the opportunity to join a walking or jogging group that met every evening at local recreational parks. Finally, after the programs completion, psychological support by phone was provided to every participant who needed follow-up contact.

## Purpose of the Present Study

The purpose of this study was to evaluate an initial application of a smoking cessation program that integrated the promotion of PA, as a cessation aid, to Greek adults in antismoking clinics. Among European member countries, Greece has the lowest rate of regular exercisers (3%) and the highest "never" exercisers rates (67%; Eurobarometer, 2010). At the same time, Greece has one of the highest percentages of smokers in Europe. According to the statistics, 37.6% of Greeks smoke (males: 46.8%; females: 29.0%), with an annual per capita consumption of 2,977 cigarettes (European Commission & Statistical Office of the European Communities, 2003).

## Method

### Participants

Participants were patients from five smoking cessation hospital clinics, located in four towns in Central Greece. Inclusion criteria were that the participants be over 18 years old and registered to the smoking cessation hospital clinic. From an initial pool of 50 individuals who started the smoking cessation program, 40 completed the program (12 men and 28 women). Their ages ranged between 33 and 63 years, with a mean age of 45.6. Five of them had completed the basic elementary level of education, 10 had graduated from high school, whereas 12 of them had a higher education degree and 14 had diplomas of technical schools. Permission to conduct this study was provided by the University's Ethics Committee. Participants filled out consent forms prior to each time point measure and interview.

### Measures

PA behavior. Godin's Leisure-Time Exercise Questionnaire (Godin & Shephard, 1985) was used to measure individuals' PA habits. Participants were asked to indicate during a typical 7-day period (a week) how many times on average they did specific kinds of PA (e.g., strenuous: running, moderate: fast walking, light: yoga) for more than 15 min during their free time. Weekly frequencies of strenuous, moderate, and light activities are multiplied by nine, five, and three, respectively. The total weekly leisure activity is calculated by summing the products of the separate components: weekly leisure activity score = (9 X Strenuous) + (5 X Moderate) + (3 X Light).

Smoking behavior. Smoking behavior was assessed by the questions "How many cigarettes did you smoke last week?" and "How many cigarettes did you smoke yesterday?" Participants indicated the number of cigarettes they smoked during the first and last meeting of the cessation program (face to face) and during the follow-up measures (by phone).

## Results

In general, the percentage of those who succeeded to quit for 1 year was 45% (N ¼ 18) of the 40 who completed the program and 36% of the 50 who initially enrolled to the program (10 participants did not complete the program). At the end of the program, regarding PA, within the quitters group, 2

of them (11.1%) increased their PA at the lower level, 10 (55.6%) of them increased their PA at the medium level, and 6 (33.3%) of them increased their PA at the higher level. Whereas, within the nonquitters group, 11 of them (50%) increased their PA at the lower level, 5 (22.7%) of them increased their PA at the medium level, and 6 (27.3%) of them increased their PA at the higher level.

## Discussion

The evaluation of this pilot application of the program: “No more smoking! It’s time for physical activity” revealed useful information on how the integration of PA promotion in a smoking cessation counseling program offers promising initial results on its effectiveness on smoking cessation to Greek adults who were motivated to quit smoking.

Thirty-six percent of the participants who started the program managed to stay off cigarettes for at least 1 year. The American Heart Association defines smoking cessation programs as effective programs when they have a success rate of 20–40% and when a large number of participants increase their PA level because of the program. It was not possible to locate data on naturally occurring quitting on adults in Greece; therefore, direct comparisons cannot be made. The participants of the program decreased significantly the number of cigarettes at the end of the intervention and decreased their scores to the habit of smoking compared to their initial scores before they enrolled in the program. In a similar program reported by Taylor, Everson-Hock, and Ussher (2010), participants in a smoking cessation program, which promoted PA, significantly improved their stage of readiness to use PA as a smoking cessation aid.

## Limitations

There are a number of limitations to this pilot study evaluating the “No more smoking! It’s time for physical activity” program, thus interpretation of the results requires caution. The study is limited in that there was not a control group for reference comparisons. This was a pilot to determine the appropriate integration of PA promotion techniques as an additional cessation aid to a counseling program. At the same time, this study intended to lay groundwork for a more complete research study in the future. The research design of pilot studies are susceptible to biases in the results of the study in order to prove exactly what the researchers wanted to show. However, one major advantage of pilot studies is that they save resources and

give opportunities to improve a larger, more scientific future study, and thus provide valid results to be used in future research. Also, exploratory pilot studies are necessary to ensure that practical problems are identified for future applications in practice.

Furthermore, although we follow-up participants for 12 months about their smoking habit, we have not collected long-term follow-up data from successful and unsuccessful quitters to determine whether they maintained their PA levels. Also, there was no contact with the 10 participants, who dropped out the program, to ask them if they dropped out because they were not ready to quit smoking or because they thought that the PA promotion as a cessation aid was hard for them to follow.

Another limitation is that it represents the views of the specific participants, thus the conclusions are mostly applicable to these patients. Additionally, as Blaxter (1997) notes, individuals when reporting health-related behaviors might assume a moral obligation to be healthy, and this may also be present in this study because we are not able to control for this. Also, self-reported quantitative measures of behavior have been criticized as liable to social desirability. However, self-report is a source of information that is inaccessible to others and is a method that is difficult to replace when assessing large samples.

## Future Research

As a next step to this research, a randomized controlled trial with a larger sample would verify these initial applications' encouraging results. Also, it would be interesting to see in future applications of the program which components of the intervention are impacting which mediating variables and which mediated paths are responsible for the overall smoking cessation effects. Additionally, future studies should investigate possible interactions between smoking and PA behaviors over time. Longitudinal studies could give answers to several questions regarding the interaction between PA and smoking behavior like: if smokers can maintain recommended amounts of PA over time, if physically active smokers are more likely to quit at a later point in time compared to sedentary smokers, and if individuals who succeed to increase their physical condition (by increasing their PA levels) without quitting smoking can actually reduce the perceived need to quit smoking. Finally, in-depth interviews with participants who either withdrew from the program or did not succeed to quit and increase their PA levels after the attendance could provide us with useful information about how to better meet their needs.

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## Declaration of Conflicting Interests

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## References

- American Cancer Society (2010). Stay away from tobacco. Retrieved from July 2, 2011, from <http://www.cancer.org/Healthy/StayAwayfromTobacco/index>
- Blaxter, M. (1997). Whose fault is it? People's own conceptions of the reasons for health inequalities. *Social Science & Medicine*, 44, 747-756.
- deRuiter, W. K., & Faulkner, G. (2006). Tobacco harm reduction strategies: The case for physical activity. *Nicotine & Tobacco Research*, 8, 157-168.
- Eurobarometer (2010). Sport and physical activity. Brussels, Belgium: European Commission.
- European Commission & Statistical Office of the European Communities. (2003). Health status: Indicators from surveys.
- Godin, G., & Shephard, R. J. (1985). A simple method to assess exercise behavior in the community. *Canadian Journal of Applied Sport Sciences*, 10, 141-146.
- Locke, E., & Latham, C. (1990). A theory of goal setting and task performance. Englewood Cliffs, NJ: Prentice Hall.
- McEwen, A., Hajek, P., McRobbie, H., & West, R. (2006). Manual of smoking cessation. A guide for counsellors and practitioners. Oxford, England: Blackwell.
- Miller, W. R., & Rollnick, S. (2002). Motivational interviewing: Preparing people for change. New York, NY: Guilford Press.
- Paavola, M., Vartianen, E., & Puska, P. (2001). Smoking cessation between teenage years and adulthood. *Health Education Research*, 16, 49-57.
- Prochaska, J. O., & Di Clemente, C. C. (1983). The stages and processes of self-change in smoking: Towards an investigative model of change. *Journal of Consulting and Clinical Psychology*, 51, 390-395.
- Taylor, A. H., Everson-Hock, E. S., & Ussher, M. (2010). Integrating the promotion of physical activity within a smoking cessation programme: Findings from collaborative action research in UK Stop Smoking Services. *BMC Health Services Research*, 10, 317.

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- Taylor, A., & Ussher, M. (2005). Effects of exercise on smoking cessation and coping with withdrawal symptoms and nicotine cravings. In G. Faulkner & A. Taylor (Eds.), *Exercise, health and mental health* (pp. 135-158). London, England: Routledge.
- Ussher, M., West, R., Taylor, A., & McEwen, A. (2005). Exercise interventions for smoking cessation (Review). *Cochrane Library*, 1, 1-19.