

# The association between tobacco use and perceptions of tobacco price strategies within primary care patients in rural Greece

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## ABSTRACT

**BACKGROUND** Tobacco use is a detrimental public health issue associated with a plethora of adverse health outcomes. The purpose of this report was to investigate the association between tobacco use and perceptions of tobacco price strategies to reduce consumption in a rural primary care setting in Northern Greece.

**METHODS** The study took place within a primary care setting, in Alonakia, in Northern Greece within a primary health care setting. Consecutive patients who were current smokers (n=121) with a routine appointment for any reason were invited to participate over a 6-week period, during the second semester of 2013.

**RESULTS** The mean daily cigarette consumption was  $20.2 \pm 12.4$  (range: 2-60) and their pack/year consumption was  $31.8 \pm 30.4$  (range: 1-150 pack/years). Within the context of a regression analysis, the likelihood for patients who were smokers to positively respond that the cost of tobacco has an effect on their daily cigarette consumption was found to decrease by 3% for every cigarette smoked more per day and by 2% for every more pack/year. Furthermore, the likelihood for participants to report that they would quit smoking in case of a doubling in the price of tobacco products decreased by 5% for every cigarette smoked more per day.

**CONCLUSIONS** The above findings imply that the reduction in tobacco use in rural Greece, is complex and a population's sensitivity should be enhanced through primary care initiatives that are adjusted between health promotion and counseling in conditions of socioeconomic distress.

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## BACKGROUND

Tobacco use is one of the most detrimental public health issues, associated with a plethora of adverse health outcomes and with a serious impact on the cost of health care services<sup>1</sup>. This becomes more evident especially in periods of economic crisis, where health systems are seriously challenged from budget cuts and austerity measures. On one hand, tobacco may be responsible for substantial constraint on the health care system, as in the case of Greece, while on the other the tobacco industry, continues to maximize their profits, despite the harmful effect of their products both to health and countries' health system expenditure<sup>2,3</sup>. Several measures have been proposed to control the global tobacco epidemic and among which an increase in tobacco product price through taxation has been suggested as one of the most effective<sup>4,6</sup>.

Tobacco tax increases have been shown to have a positive effect on smoking cessation and in increasing quit attempts<sup>7-</sup>

<sup>10</sup>. Nevertheless, price increases should not be considered as a unique policy for reducing consumption, as the impact of personal income, advertising and health promotion also contribute<sup>11</sup>. Especially, in the case of Greece, consecutive attempts over time for increased taxation of tobacco products have not yielded any dramatic improvement in smoking cessation rates as indicated by the high prevalence of smokers in the country. Greek people seem to be "price-resistant" but agree to increased taxation on tobacco products, despite the overall national economic restriction, given that this is earmarked for the health care system<sup>5</sup>. It is important to note that people in rural areas, due to the geographical morphology in Greece, usually have limited access to illicit tobacco markets. Illicit trade is common in urban areas, outdoor markets, near border areas and ports and is popular to immigrant population<sup>12</sup>. Even though Greece due to its location constitutes a pathway for tobacco smuggling towards

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the Western European countries, according to a recent study, seems to have the lowest prevalence (1%) in the identification of illicit packs among eighteen European countries<sup>13</sup>.

With the above in mind, the aim of this study was to assess the association between future tobacco use in relation to price strategies to reduce consumption, in the midst of an intense financial crisis, from a rural primary care setting in Greece.

### METHODS

The study took place within a primary care setting, in Alonakia, in Northern Greece. Consecutive patients-smokers with a routine appointment for any reason were invited to participate over a 6-week period, during the second semester of 2013. One hundred and twenty-one patients-smokers participated in the survey, 83 males and 38 females with a mean age of 53.2(SD 15.6) years (range: 17-88 years). Seventy-two participants (59.5%) reported a net income of 500€ and less per month. Ethics approval was obtained from the Ethics Committee of Kozani General Hospital, while each participant provided written informed consent.

An original questionnaire of ten items was designed including domains on patients' attitudes and concerns towards tobacco use. The instrument was developed based on GPs' observations during regular visits in regards to smoking habit and local community-widespread views on financial crisis and its possible impact on tobacco use. A GP, not affiliated with the recruitment unit, reviewed the instrument and offered feedback. Clarity and relevance of the content were checked by testing the questionnaire among 10 respondents. Demographic data (age, sex, marital status, education, occupation and monthly income) were also collected.

The statistical analyses were performed with SPSS 20.0. Descriptive analyses were used, while a univariate logistic regression was applied to determine the association between tobacco use parameters and support for increase in tobacco taxation for which odd ratios and 95% confidence intervals (95% C.I) were also presented.

### RESULTS

The mean daily cigarette consumption of the respondents was 20.2(SD 12.4) (range: 2-60) and their average pack/year consumption was 31.8(SD 30.4) (range: 1-150 pack/years). Moreover, 61.2% declared an intention to quit tobacco use during the next 12 months. Most patients-smokers (87, 71.9%) had made one or more quit attempts in the past, but only 8 (6.6%) sought personalized medical assistance to do so. Amongst participants, the most important self-reported rational for intending to quit were potential health effects

[60/74, (81.1%)], while the cost of tobacco was reported as a reason to quit by 7/74 (9.5%) of those who intended to quit in the next year. Even though, 52% of smokers declared that the cost of tobacco affects their daily cigarette consumption, 63.6% of respondents reported no intention to quit, even if tobacco product prices were to double.

Within a univariate regression analysis, the likelihood for participants to positively answer that tobacco cost has an effect on their daily cigarette consumption decreased by 3% for every increase of one cigarette smoked per day [Odds Ratio (OR): 0.97, 95% Confidence Interval (CI): 0.94-1.00,  $p=0.032$ ] and by 2% for every one unit increase in the pack/year history of smoking (OR: 0.98, 95% CI: 0.96-0.99,  $p=0.0039$ ). Furthermore, the likelihood for participants to report an intention to quit smoking if tobacco prices would double, decreased by 5% for every cigarette smoked more per day (OR: 0.95, 95% CI: 0.92-0.98,  $p=0.0017$ ).

### DISCUSSION

This regional study indicated an association between the number of cigarettes smoked per day and pack/year history, with reduced intention to give up smoking in case of tobacco price duplication. This finding stresses the importance of patient counseling to reduce tobacco use, as national policies may not have the ideal outcome if not supported at the grassroots level. It is through this level that the primary health care providers can offer valuable assistance and discuss tobacco use with their patients within their daily clinical practice.

Primary care makes up a promising field for the development of smoking cessation interventions<sup>14</sup>. General practitioners (GPs) have a unique opportunity to influence national smoking rates<sup>15</sup>, through the implementation of effective primary care interventions<sup>16</sup>, but may still handle poorly smoking cessation counseling<sup>15, 17</sup>. Regular healthcare visits, continuity of care and doctor-patient relationship, constitute strong elements for a successful smoking cessation intervention. Towards this direction, smoking cessation programmes, in conjunction with the clinical services offered, should be integrated in primary care<sup>18</sup>. Of course the number of smokers who state that they have received an evidence-based approach from their primary care physician in order to quit smoking remains low<sup>19, 20</sup>, particularly during the steps of 'Assisting' smokers for a quit attempt and 'Arranging' for a follow-up contact process<sup>21</sup>.

A shortage of skills and knowledge, limited time, high workload and limited self-confidence in regards to tobacco prevention counseling, have been previously noted among GPs<sup>22</sup>. Furthermore, inadequate training, lack of incentives and reimbursement, may further contribute to the low level of

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engagement in smoking cessation actions<sup>17,18</sup>. Health care system organizational barriers and limited economic incentives, for the promotion of tobacco cessation counseling, may also enhance the 'inertia' of the physicians<sup>24</sup>. On the other hand, physicians as societal role players may influence smoking cessation outcomes as research among French Gpshas indicated limited efficacy of French physicians within smoking cessation as a result of their own high smoking rates<sup>25</sup>. This finding could be aligned to the observation that if 40% of Greek doctors are smokers<sup>26</sup> many may have reduced motivation to deal with smoking cessation in clinical practice.

Most smokers contemplate quitting hence tobacco control efforts and policies could strengthen the transition between contemplation and an actual quit attempt<sup>27</sup>. This should trigger an alert for health policy makers, in order to expand a supportive environment through smoking cessation services. Unfortunately, organized smoking cessation services in the Greek National Health System are limited to some urban structures of secondary and tertiary health care, thus not easily accessible by residents of rural and remote areas. This situation empowers the so called 'forgotten smokers', who have the general motivation to quit but do not have access to organized and specialized services, remaining thus without essential support<sup>28</sup>. In this direction, group counselling may be a potential solution, as research has indicated that group counselling in a health care setting may be the most successful type of intervention in supporting smokers in disadvantaged areas to quit<sup>29</sup>.

Another important finding of this study is that six out of ten smokers reported a low net income per month. Increased taxation has been demonstrated as an effective method to reduce or aid quit attempts in the general population but there is evidence suggesting that these increases are ineffective at reducing income-based disparities in smoking prevalence<sup>30</sup>. Financial stress in conjunction with nicotine addiction consist a strong barrier for low-income smokers to overcome and despite the increased tobacco taxation, smoking prevalence in this population in Greece is still very high. Taking into account the above it is even more imperative to implement innovative policies for low-income smokers, in order to achieve increased cessation rates<sup>31</sup>.

The current study identified interesting regional associations between smoking characteristics and tobacco tax increases, among a limited sample of PHC patients in Northern Greece. However, we must note that this study is limited by its study design, sample size and generalizability to the population. Further research with larger population groups generalizable to patients who visit PHC services in Greece is hence warranted.

## CONCLUSION

In conclusion, rural areas 'host' many heavy smokers with a low socioeconomic status who have little intention to quit. This finding stresses the need for action in the context of primary care. Smoking cessation and prevention counseling should be a priority in the educational agenda of general practice in Greece. A possible implication of this study is that GPs might and should take a more active role in assisting their patients who wish to quit smoking.

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**CONFLICT OF INTEREST**

The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none were reported.

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**AUTHORS' CONTRIBUTIONS**

EKS, SK and NK conceived the idea, designed the study and contributed to manuscript preparation and data interpretation. DK and SK carried out data collection. CIV also contributed to data interpretation. EKS, CV and CL offered technical and intellectual input and revised the manuscript. All authors have read and approved the final manuscript.

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