

Changing Patterns In Tobacco Consumption Among Spanish Military Personnel Under Stressful Conditions

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Abstract

Objective: A study is made to determine the prevalence of smoking and its variation over time in a group of Spanish military personnel (MP) under stressful conditions.

Methods: A questionnaire specifically designed for this study was administered to the entire MP contingent assigned to Banghish province (Afghanistan) between July and October 2009. A descriptive analysis was made ($p < 0.05$, 95%CI).

Results: The study sample comprised 254 MP (males 239; mean age 32 years (SD 9)). A total of 39.8% (95%CI; 33.7 – 45.8) were smokers, while 3.1% (95%CI; 1.0 – 5.3%) were former smokers. Regarding smoking habit before and at the end of deployment, one-half (50.5%) of the smokers declared that they smoked the same as before, 20.8% more than before, and 18.8% less than before. In turn, 5.9% of the smokers claimed to have started to smoke in the course of deployment, while 4% of the former smokers declared that they had quit smoking. The MP who quit smoking were younger than those who began to smoke (24 ± 5 vs 39 ± 9 years, $p = 0.038$). Moreover, the heavy smokers (≥ 15 cigarettes/day) reduced tobacco consumption, while the less heavy smokers increased the habit ($p < 0.0001$).

Conclusions: The prevalence of daily smokers is high among MP. The majority of smokers smoke the same at the end of deployment. Those who quit smoking during the mission are significantly younger than those who begin to smoke. In turn, heavy smokers reduced their habit, while less heavy smokers increased smoking.

Introduction

Considerable documentation is available on smoking reduction in the general population in Spain [1,2]. In the 25 – 34 year old age group the rate of daily smokers fell from 44.2% to 35.3% between 2001–6, whilst the prevalence of intermittent smokers fell from 4.75% to 3.6% in the same period. However, a number of large studies all over the world have documented a high prevalence of tobacco consumption among military personnel (MP) [3]. In agreement with this, we have previously confirmed a high prevalence of smoking in Spanish MP [4,5].

The Spanish armed forces started their participation in International missions in 1989. Under a commitment to peace and international legal precepts, they currently form part of the International Security Assistance Force (ISAF, NATO) in Banghish and Herat (Afghanistan). The present peace missions are based upon four basic activity areas coordinated as required by the evolving circumstances: security, reconstruction, political and democratic development, and humanitarian aid. Since Spanish incorporation to international peace support operations, the prevalence of smokers among MP has been found to be higher

than in the civilian population [6]. Several factors have been found to be related to increased tobacco use among MP: alcohol consumption, risky behaviour, having friends who smoke, tobacco use for weight control, ethnicity, male status, and individuals with less formal education are more likely to smoke [3]. It also has been suggested that smoking is more frequent in situations characterized by combat stress [3], though other studies have been unable to confirm this [7].

The present study was designed to determine the prevalence of smoking and its variation over time in a group of Spanish MP under stressful conditions.

Methods

All Spanish MP are required to attend an end-of-deployment medical examination at which a questionnaire (anonymous, personal and voluntary) specifically designed for the study was administered to the entire Spanish military contingent assigned to Banghish province (Afghanistan) between July and October 2009. The questionnaire was designed to be simple and reproducible and consisted of five questions (Box 1).

The questionnaire was answered by all the personnel members (254 out of 254) and was completed in private.

The data were entered into a Microsoft Access® 2003 database designed for the study (Microsoft, Redman, Washington, USA).

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1. Age.
2. Gender.
3. Do you smoke? Yes, no or former smoker.
4. How many cigarettes do you smoke now?
5. How many cigarettes did you smoke before the deployment?

Box 1 – The questions contained in the simple questionnaire

The SPSS version 11.0 statistical package (SPSS, Inc., Chicago, Illinois, USA) was used for the statistical analysis. A descriptive study of the sample was made, in which quantitative variables were expressed as the arithmetic mean (\pm SD) of the variable. The χ^2 test was used to compare proportions (qualitative variables involving independent data), while the Student t-test was used to compare the means of two groups in the case of quantitative variables. Multiple comparisons of means were made by analysis of variance (ANOVA) with post hoc comparisons using the Bonferroni test. Statistical significance was accepted for $p < 0.05$ (95% confidence interval, 95%CI).

Results

The sample comprised 254 MP (239 males and 15 females; mean age 32 years (SD 9; range 19 – 55)) (Table 1). The prevalence of smokers was 39.8% (95%CI; 33.7 – 45.8), while the prevalence of former smokers was 3.1% (95%CI; 1.0 – 5.3%). Those who had never smoked, the smokers and the former smokers were similar in terms of age and gender distribution.

Regarding smoking habit before and at the end of deployment, one-half (50.5%) of the smokers declared that they smoked the same as before, 20.8% more than before, and 18.8% less than before. In turn, 5.9% of the smokers claimed to have started to smoke in the course of deployment, while 4% of the former smokers declared that they had quit smoking during deployment (Table 2). The distribution of this variation in tobacco consumption was not related to gender ($p = 0.824$) or age (more versus less than 30 years old; $p = 0.164$). MP who quit smoking were younger than those who began to smoke (24 ± 5 vs 39 ± 9 years, $p = 0.038$). Moreover, the heavy smokers (≥ 15 cigarettes/day) reduced tobacco consumption, while the less heavy smokers increased the habit ($p < 0.0001$) (Table 2).

		Number
Gender and smoking status		239 Males : 93 current smokers + 8 ex-smokers
		15 Females : 8 smokers
Mean Age (years)		31.6 (range 19 -55)
Number of smokers per age group (years)	18 to 24	64
	25-30	72
	31-35	39
	36-40	33
	41-45	22
	46-50	12
	>51	12

Table 1. Demographic data of the study.

Discussion

A number of large studies have documented a high prevalence of tobacco use in MP [3, 4, 7-10], and it has been reported that many non-smokers start smoking after entering the military [10]. In our study, 5.9% of the MP claimed to have started smoking during deployment, and the less heavy smokers increased their tobacco consumption. Smith et al [11] concluded that military deployment is associated with smoking initiation and with smoking recidivism, particularly among those with prolonged deployments, multiple deployments, or combat exposures. It has been suggested that elevated rates of tobacco use among MP may be due to population-based factors such as the relatively young age of military members and a lower educational level [12, 13]. Combat also may increase the likelihood of tobacco use [11, 14, 15]. Green et al [16] suggest that military role models who smoke, peer smoking behaviour, and perceived smoking norms increase the likelihood of smoking initiation among MP. We found no clear answer as to why some of our MP started to smoke during the mission, or why others increased or decreased their smoking habit. There are no restrictions on Spanish military bases abroad as regards tobacco purchasing by MP, and smoking is freely allowed in open spaces – the sole prohibition referring to closed spaces, where smoking is only allowed in areas reserved to the effect. The observed changes in smoking habit probably were attributable to personal or lifestyle circumstances. The study was not designed to determine which subjects experienced such changes according to the working activities involved, though this may have allowed us to establish whether increased smoking is more related to combat / defence activities, and whether lessened smoking is related to personnel posted at the base headquarters or involved in logistic activities. In Spain, Laclaustra-Gimeno and colleagues [17] designed a prospective study starting at the end of the 1980s and lasting for 15 years. It was carried out in a group of military cadets of the Spanish General Academy, and explored the stability of different anthropometric measures such as lipid levels and arterial pressure, and smoking. Authors contacted those who had been involved initially whilst they were undertaking an academic course for professional training in Zaragoza (Spain).

Variation in tobacco use	Number	%	
Smoke more	21	20.8%	
Smoke less	19	18.8%	
Smoke the same	51	50.5%	
Began to smoke*	6	5.9%	
Quit smoking*	4	4%	

Number cigarettes/day	Increased number of cigarettes	Unchanged	Decreased number of cigarettes
≥ 15	2 (4.3%)	27 (57.4%)	16 (34%)
< 15	19 (35.2%)	24 (44.4%)	3 (5.6%)
Total	21 (20.8%)	51 (50.5%)	19 (18.8%)

*During the course of the deployment.

Table 2. Distribution of tobacco consumption before and at the end of deployment (top), and variations in tobacco use according to smoking intensity (heavy smokers (≥ 15 cigarettes/day) reduced tobacco consumption, while the less heavy smokers (< 15 cigarettes/day) increased tobacco consumption ($p < 0.0001$)).

During this course, a new cross-sectional survey was carried out in order to determine their current cardiovascular health, as well as the evolution of the different cardiovascular risk factors 15 years after the initial analysis, and detect which of these factors were sufficiently stable to require a certain degree of attention at the onset of adult life. In agreement with our own study, they found the rate of smokers to show no substantial changes with respect to the beginning of the study, though active smokers were seen to smoke comparatively more cigarettes per day.

An important observation in our study was that 4% of smokers quit smoking in the course of deployment. In this context, Owers and colleagues [18] concluded that specific barriers arise against smoking cessation, derived from the structure and culture of the army; cultural barriers including peer pressure; smoking norms; and a lack of discouragement from the “regimental family”. Other factors in turn contribute to an increased opportunity to smoke in terms of time, place and cost, and this is particularly so in the Spanish general population and specifically in the Spanish military. Nelson and colleagues [3] have recommended that the military provide access to cessation programs for those in combat and noncombat roles. MP in noncombat roles should be encouraged to stop smoking with interventions that could focus on healthier ways to cope with military life, such as jogging, weight training, or swimming. Similar strategies for those in combat roles may prove ineffective due to the stress of deployment and combat, but when these individuals return from deployment they should be targeted with persuasive and proven cessation assistance.

Due to the increase in tobacco use among MP, it is crucial to find messages that can prevent these people from increasing or taking up smoking. The work of Hoffman and colleagues [10] offers us some cues. MP play a model role as non-smokers for children and adolescents. In Spain, physicians and teachers are considered social models for preventing smoking initiation in children and adolescents, though it would be advisable also to incorporate MP to this message. Another key point for reducing the prevalence of tobacco use is to present smoking as an issue that negatively affects physical and psychosocial factors related to military readiness. It is also important to emphasize the idea that smokers are less productive than non-smokers, and even that a recent history of cigarette smoking is an important determinant of hospital admission risk even for healthy young MP [19]. These and other messages should be evaluated by different studies.

A positive aspect of our work was that all the MP completed the questionnaire. Nevertheless, the study has clear limitations. In effect, despite the 100% response rate, the number of subjects interviewed was not very large – a fact that limits the firmness of any conclusions drawn. In addition, no validated questionnaire was used, and this may have given rise to reliability problems – though we consider that the simplicity of the questionnaire and its short administration time make it reproducible. As regards the possibility of bias in completing the questionnaire, the latter was administered in the course of a medical examination at the end of the mission, and this may have led to non-response bias, since administration of the questionnaire in the context of a health exploration could have increased motivation to provide the requested answer.

Conclusions

The prevalence of daily smokers is high in Spanish MP, and the majority of these individuals are seen to smoke the same at the end of

deployment. We found those who quit smoking to be significantly younger than those who start to smoke, and heavy smokers reduced consumption while less heavy smokers increased smoking.

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