Health promotion across occupational groups: one size does not fit all

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Background
Although several studies have examined the link between specific working conditions and health behaviours, very few have comparatively assessed the health behaviours of different occupational groups.

Aims
To compare protective and risky health behaviours among police officers, ambulance workers, hospital staff (doctors and nurses) and office workers, prompted by the need to identify key areas for interventions tailored to the needs of different occupational groups.

Methods
A cross-sectional postal survey using the Health Behaviours Inventory, assessing health behaviours which are risky (alcohol intake, smoking, coffee consumption, fast food meals and painkiller consumption) and protective (physical activity, eating breakfast and hours of sleep).

Results
The sample consisted of 1451 employees. Ambulance workers smoked the most cigarettes per day \( (F_{(4,1405)} = 8.63, P < 0.01) \), while doctors consumed twice as many fast food meals as any other occupational group \( (F_{(4,1415)} = 78.45, P < 0.01) \) and had the highest daily caffeine consumption \( (F_{(4,1440)} = 11.17, P < 0.01) \). Ambulance workers and doctors reported the highest frequency of alcohol consumption per week \( (F_{(4,1441)} = 10.13, P < 0.01) \). In regard to protective health behaviours, office workers reported the highest number of breakfast meals per week \( (F_{(4,1438)} = 170.34, P < 0.01) \), while police officers and ambulance workers exercised more frequently \( (F_{(4,1420)} = 5.764, P < 0.01) \).

Conclusions
The results of the study highlight key priorities for health promotion for different occupational groups which need to be taken into consideration in policy making and developing workplace interventions.

Key words
Health behaviours; health promotion; lifestyles; physical activity; smoking.

Introduction

There is significant evidence to suggest that health behaviours may not only be a product of individual choice but are also influenced by workplace characteristics. Several studies have examined the predictive value of structural or psychosocial working conditions in relation to different health behaviours. Sedentary work, shift work, long working hours, increased job demands and work-related stress have been associated with increased alcohol consumption, reduced exercise and unhealthy diet [1–3]. These studies have provided valuable information on which types of workplace factors are related to which types of health behaviours. However, in devising occupational health promotion policies, it may be more cost-effective to focus on health behaviours of specific occupational groups, rather than specific workplace characteristics.

Studies have independently examined the health behaviours of firefighters [4], metal product factory workers [1], civil servants [5], ambulance workers [6], white collar workers [7], health care workers [8] and automotive workers [9]. In regard to physicians, the results of the evidence are conflicting. A national study of 3213 Canadian physicians showed that their personal lifestyle and screening practices were largely compliant with the Canadian Task Force on Preventive Healthcare recommendations [10]. However, evidence from other
countries shows that physicians tend to follow unhealthy lifestyles. For example, Winston et al. reported significant barriers to healthy eating among NHS hospital doctors [11].

Very few studies have compared the health behaviours of different occupational groups. Among these, a national health survey among 3323 German employees showed that the percentage of physically active highly qualified professionals was double that of manual workers [3]. It has also been shown that manual workers are at higher risk of alcoholism compared with non-manual employees [12]. A qualitative study of men from three different occupations in Oslo showed that there were clear differences in the way carpenters, engineers and drivers perceived diet and physical activity. Specifically, engineers tended to adopt a healthy diet and took physical exercise more frequently, while drivers consumed more fast food meals [13].

Additionally, the majority of studies comparing health behaviours of different occupational groups have focused on a single health behaviour (e.g. alcohol use). However, in order to develop comprehensive guidelines for workplace health promotion, it is essential to compare various health behaviours among different occupational groups.

The purpose of this study was to compare protective and risky health behaviours among five different occupational groups: police officers, ambulance workers, hospital staff (doctors and nurses) and office workers. These groups were selected in order to represent ambulant (ambulance, police force) and non-ambulant (hospital, offices) work settings, regular work schedules (office) and shift work (hospital staff, ambulance workers, police officers). To control for the effects of different types of employment contracts, public sector employees only were included in the study. Finally, the study controlled for the effects of gender, age and marital status, given the existing evidence on the links between demographic characteristics and health behaviours [14].

**Methods**

A cross-sectional postal survey was conducted between September 2008 and September 2010 in Thessaloniki, Greece.

Police officers were recruited from the Thessaloniki branch of the Hellenic police force, medical staff from the two University teaching hospitals of the Aristotle University of Thessaloniki, ambulance workers from the Thessaloniki branch of the National Ambulance Association and office workers from the municipal services of Thessaloniki.

All participants had to meet the following inclusion criteria: ability to understand the Greek language and being gainfully employed for at least 1 year at their present working position. Participants were excluded if there were currently on long-term sick leave or maternity leave. Police officers and ambulance workers currently occupying office jobs were excluded from the survey. Medical staff in training were also excluded.

Health behaviours were assessed with the Health Behaviours Inventory (HBI). This was constructed for the purposes of the study in order to develop an evidence-based, easy to administer, comprehensive assessment of health behaviours, to be used as a screening tool for workplace health promotion. Items were selected after a systematic review of the literature on which types of health behaviours have been associated with different occupational groups. In order to evaluate the accuracy, relevance and face validity of the retrieved items, a series of focus groups were conducted with members of the occupational groups involved in the study. The final version of the HBI comprised of 10 items assessing ‘risky’ health behaviours (alcohol intake, smoking, consumption of caffeinated drinks, fast food meals, painkiller consumption) and protective ones (physical activity, eating breakfast and hours of sleep). Respondents were requested to fill in the HBI concerning their behaviours in the past week.

Demographic and work characteristics were also assessed with questionnaires constructed for the purpose of the study. The study was approved by the Ethical committee of the Medical School of the Aristotle University of Thessaloniki. Since this was an anonymous postal survey, no written informed consent was required.

Management boards of each participating workplace were informed about the study with a letter followed by a phone call and asked to provide access to the postal addresses of all employees meeting the inclusion and exclusion criteria. A questionnaire was then sent directly to all identified employees together with a response envelope, ensuring the anonymity of responses. In the accompanying letter, participants were informed about the purpose of the study and were asked to complete the questionnaire anonymously. Contact information was also provided.

One-way analysis of co-variance was conducted to explore the impact of occupational position on health behaviours, controlling for the role of gender, age and marital status. For the post hoc comparisons, Bonferroni test was used. For the statistical analysis of the data, the Statistical Package for Social Sciences (SPSS 20.00) was used [15].

**Results**

The sample consisted of 1451 employees: 10% (141) were police officers, 25% (359) were ambulance workers, 14% (200) were office workers, 31% (444) doctors and 21% (307) were nurses. Forty-nine per cent (706) were male. The mean age of the sample was 40.4 years.
The response rate was 45% for police officers, 62% for ambulance workers, 40% for office workers and 40% for hospital staff.

Table 1 shows the responses to the HBI for each of the five occupational groups. There were statistically significant differences in reported frequency of eating breakfast, eating fast food, number of hours sleep reported, number of cigarettes smoked daily, frequency of exercise taken per week and reported daily coffee, alcohol and painkiller consumption between the five occupational groups.

For frequency of eating breakfast, post hoc comparisons indicated that the mean score
for office workers was significantly higher than all health professionals \( (F_{(4, 141)} = 5.7, P < 0.01) \), while for frequency of eating fast food per week, post hoc comparisons indicated that the mean score for doctors was significantly higher than police officers, ambulance workers and nurses \( (F_{(4, 1415)} = 78.45, P < 0.01) \).

For number of hours of sleep reported, post hoc comparisons indicated that office workers slept the most hours per night and ambulance workers the least \( (F_{(4, 1438)} = 170.34, P < 0.01) \), and for the number of cigarettes smoked per day, post hoc comparisons indicated that ambulance workers smoked the most cigarettes per day and doctors the least \( (F_{(4, 1405)} = 8.63, P < 0.01) \).

For frequency of exercise taken per week, post hoc comparisons indicated that nurses exercised the least and police officers and ambulance workers the most \( (F_{(4, 1420)} = 5.764, P < 0.01) \). In respect of reported coffee consumption per day, post hoc comparisons indicated that doctors consumed the most coffee per day and office workers the least \( (F_{(4, 1440)} = 11.17, P < 0.01) \).

For alcohol consumption per day, post hoc comparisons indicated that ambulance workers and doctors consumed the most alcohol units per week and nurses the least \( (F_{(4, 1421)} = 10.13, P < 0.01) \), while for reported painkiller consumption per day, post hoc comparisons indicated that nurses consumed the most painkillers per week and police officers the least \( (F_{(3, 424)} = 7.0, P < 0.01) \).

**Discussion**

The results of this study suggest that different occupational groups have different priorities in terms of lifestyles. Specifically, health professionals (ambulance workers, doctors and nurses) tended to report more risky health behaviours than police officers or office workers. One possible explanation could be the greater number of working hours worked by health professionals in Greece compared with police officers or office workers. In a previous study of Greek ambulance workers, Moustou et al. (2010) showed that longer working hours were positively associated with unhealthy behaviours. In this regard, the finding that doctors consumed fast food meals almost twice as frequently as the other occupational groups could be attributed to the immediate ‘energy boost’ often associated with fast food as a result of the high concentration of sugar or salt [14]. Similarly, doctors also had the highest frequency of caffeine consumption per day, which could be attributed to the belief that caffeine boosts performance [16]. However, other studies have shown that working overtime is associated with a healthy diet, physical activity and not smoking among health professionals [2]. Future research is needed to examine the potential moderating mechanisms in the relationship between working hours and health behaviours. An alternative explanation is that the difference in health behaviours between health professionals and the other occupational groups is the result of higher job strain and burnout [2,17]. Several studies have shown a link between high levels of burnout and unhealthy lifestyle among health professionals [10,18].

Ambulance workers and doctors reported the highest frequency of alcohol consumption per week and nurses the lowest. Several previous studies have highlighted the susceptibility of physicians to alcohol and drug abuse, a fact related among others to work-related stress and burnout [19]. The same factors could also be responsible for the higher frequency of alcohol consumption in ambulance workers since they share some common risk factors with physicians, e.g. taking decisions under pressure and working in the front line of patient care. However, in terms of smoking, in this study, ambulance workers reported smoking the most cigarettes per day and physicians the least. This could be attributed to the fact that smoking is restricted in all hospital areas in Greece. Compared to other occupational groups, doctors smoked the least. This is in line with international trends showing that smoking rates have fallen faster among physicians than other health professionals [20].

The frequency of alcohol consumption reported by Greek nurses in this study seems to be lower than previous studies among nurses in the UK and USA [21,22] but is in agreement with previous studies conducted in this population [23]. However, nurses were found to consume the most painkillers (analgesics) per week compared with the other occupational categories. This could be explained by the high prevalence of chronic pain in this working population, which has been linked to increased use of painkillers [24]. Excessive use of painkillers without clinical indications could be considered a risk factor for the misuse of other medication or substances, which is a growing issue among the nursing profession [25]. In terms of dietary habits, the mean frequency of eating breakfast was about 4.5 times per week for all occupational groups, which is too low considering recent evidence on the risks related to skipping breakfast [26,27]. In terms of physical activity, nurses exercised the least and police officers and ambulance workers the most, which is in agreement with the assumption that shift work decreases opportunities for physical activity, since organized sports are often time inflexible [28]. The contrast between nurses and ambulance workers, although both groups work in shifts, could be explained by the fact that for ambulance workers, staying physically fit is required by the demands of their job since they often have to engage in heavy manual activities [6]. Similarly, the high rate
of physical activity among police officers accords with the existing literature showing that a high percentage of police officers are physically active in order to cope with their job demands [29].

Police officers in this study reported engaging in healthier lifestyle habits compared with all other occupational groups. This finding is in contrast to previous evidence showing that working in the police force is associated with hypertension, diabetes and cardiovascular disease [30].

In contrast to previous studies assessing the link between specific work characteristics, such as shift work, and health behaviours, this study aimed to conduct a comprehensive comparison of health behaviours between several occupational groups. Table 2 shows the priorities for health promotion at work for each of these groups as indicated by the results of this study. This approach could facilitate the implementation of workplace interventions tailored to the needs of specific occupational groups.

The study sample was not randomly selected and as a result reported associations might have been underestimated. However, reported associations were corrected for gender, age and marital status. Detailed information on workplace characteristics was not assessed. Future studies should combine quantitative with qualitative methodologies in order to identify key priority areas for intervention for each occupational group in different work settings [6].

Since the purpose of this study was to identify priority areas for intervention for different occupational groups, a short screening tool for assessing health behaviours was used. In terms of developing interventions, detailed assessments of risky and protective behaviours should be used [3].

Finally, the focus of this study was on health behaviours, in an attempt to identify key priorities for intervention for different occupational groups. As a result, no information on general health status or psychological stressors of participants was collected. Given the existing link between health behaviours and chronic disease such as type 2 diabetes, or risk factors such as body mass index or hypertension, future studies should examine whether the identified differences in health behaviours between the different occupational groups also result in detectable differences in health outcomes [26,27].

This was the first study to compare health behaviours comprehensively among different occupational groups in Greece. The results have highlighted different key priorities for different occupational groups which should be considered in developing workplace health promotion policies and planning specific interventions.

### Key points
- In devising workplace health promotion policies, it is important to compare health behaviours across different occupational groups.
- Health professionals in this study reported adopting more risky health behaviours than police officers or office workers.
- Key priorities tailored for different occupational groups need to be considered in developing and implementing workplace health promotion policies and interventions.

### Conflicts of interest
None declared.

### References


