PSYCHOLOGICAL PARAMETERS AND HABITUAL SMOKING AMONG HEALTH PROFESSIONALS

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Summary

Greece presents the highest proportion of smokers among Western European countries with a percentage of 37,6%, in addition to the highest amount of cigarette consumption per individual. The aim of the current study is to shed light on the prevalence of habitual smoking among health professionals as well as investigating the possible implication of psychological factors in habit maintenance and quitting. The study's sample consists of 104 health professionals selected at random from a list of nursing and medical staff. Participant demographics (gender, age), whether or not they were smokers, daily amount of cigarette consumption among smokers and whether or not the smoking population expressed a desire and/or attempted to quit were all taken into account. Participants then completed the Symptom Checklist 90 scale for psychopathological symptoms, in addition to the Fagerstrom scale for nicotine dependence. 52% of our sample reported being smokers whereas 48% reported being non-smokers. Among smokers, 50% expressed a desire to quit smoking. Those who expressed a desire to quit smoking scored highest on scales for somatization, anxiety, depression and hostility on the Symptom Checklist 90. Daily amount of cigarette consumption appears to have a positive correlation with levels of compulsivity, interpersonal sensitivity, depression, anxiety, hostility, paranoid ideation and psychoticism among the total population of our smoking sample. In conclusion, the percentage of health professionals that continue to smoke, despite their awareness of the relative adverse effects, remains high. It is however interesting, as well as promising, that one in two smokers seem to express a desire to quit smoking. Finally, the group of smokers expressing a desire to quit can be distinguished from the rest of the smoking population of our sample on the basis of psychological parameters.

Introduction

The history of the recreational use of tobacco

Before beginning our study on the subject of habitual smoking, we find it important and interesting to first take a look at some of the debates and issues around the subject that have arisen throughout the years.

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Tobacco arrived in Europe in the 16th century when it was imported from North America where it was known that Native Americans tended to consume tobacco during particular rituals and ceremonies. The arrival of tobacco in Europe was immediately followed by the first campaigns aimed at abolishing its recreational use. In 1627 Johan Joachin Von Rusdorf released an attack against the use of tobacco calling it "damning", an opinion shared by the writer Moschevoshi who referred to tobacco as a "demonic" substance. In 1611, Switzerland, together with various other countries, banned the use of tobacco. Penalties and judicial measures were imposed as a means of putting an end to the outspread of habitual smoking. Despite that, between the 17th and 18th century, scientists reported that tobacco has the property of drying out the human body from liquids that cause diseases such as edemas, wet lung disease etc. In France, in 1700, it was reported that critical thinking, clarity of thought, spiritual strengthening and the reduction of sexual activity and the consequent increase of activities focused on spirituality are several of the beneficial effects of the recreational use of tobacco.

However, it seems that the legalization of tobacco came as a result not of the scientific community's "blessing" but of the possible financial prospects of the tobacco trade [1-3].

Smoking among health professionals

In the last two decades, researchers have been aiming at investigating the relationship between health professionals and habitual smoking, in particular among nursing staff in Anglo-Saxon countries [4-6]. Multi-national research protocols covering population samples from 21 countries suggest that the prevalence of habitual smoking among a large percentage of nursing staff is high [7].

Among health professional in Greece, 40-50% of medical staff is reported as being smokers [8-9] whereas for nursing staff the percentage of smokers seems to be around 45% [10].

Studies focusing on the psychological parameters associated with the maintenance of the smoking habit among both the general population and health professionals are limited to investigating levels of anxiety and depression [8, 10]. Certain studies point to a relationship between anxiety and depressive symptomatology and smoking.

However, other psychological parameters such as obsessive/compulsive and psychotic symptoms, which have been investigated among clinical samples regarding habitual smoking [11], have not been taken into account with regards to health professionals.

Determining other factors implicated in the maintenance of the smoking habit, will be helpful in our understanding of the issue as well as in informing intervention schemes focused on quitting habitual smoking.

Aim

The aim of the current study is to highlight the issue of habitual smoking among health-professionals, as well as investigating the implication of psychological factors in smoking.
Specifically, the goals of this study are:
1) To deduce the percentage of individuals who smoke whilst being aware, due to their education or professional expertise, of the adverse effects of smoking.
2) To quantitatively and qualitatively differentiate between individuals who do not smoke, individuals who smoke but desire to quit and individuals who smoke and do not express any desire to quit on the basis of psychological parameters.
3) To investigate possible correlations between psychological parameters and levels of nicotine dependence in individuals.

Materials-Methods

The study was carried out at the "Sotiria" General Hospital for Chest Diseases.
Our sample consisted of 104 health professionals selected at random from the hospital's list of nursing and medical staff. Participant demographics (age and gender), whether or not they were smokers, daily amount of cigarette consumption and whether or not participants, if smokers, expressed a desire to quit smoking were all recorded.
Participants were then asked to complete the Symptom Checklist 90R (SCL 90-R) scale for psychopathological symptoms [12] as well as the Fagerstrom scale for nicotine dependence.
The SCL 9 –R scale is a self-report questionnaire which includes 90 items rated from 0 to 4, depicting psychological, behavioral and bodily distress. The items are classified into 10 domains:
1. Somatization: distress that concerns bodily dysfunction.
2. Obsessive-Compulsive: distress related to the known clinical disorder.
3. Interpersonal sensitivity: ideas of inadequacy, inferiority and self-deprecation.
4. Depression
5. Anxiety
6. Hostility: feelings and behaviors of frustration and aggression.
7. Phobic anxiety: distress related to agoraphobia.
8. Paranoid ideation: complaints and behaviors reflecting paranoid thinking.
9. Psychoticism: "Class A" symptoms of schizophrenia together with personality characteristics indicative of social distancing and alienation.

The scale has been configured for the Greek population [13] and has been used in other studies [14]. Criterion validity is satisfying and sufficient convergent validity has been found, as there are significant correlations between the current scale's subscales and related subscales of the MMPI questionnaire [13].

The Fagerstrom nicotine dependency scale is a widely used questionnaire consisting of 6 items rated between 0 and 10. Values between 7 and 10 indicate significantly high levels of nicotine dependence whereas values between 0 and 3 reflect low levels of dependence [15-16]. There is a positive correlation between the Fragerstrom questionnaire and biochemical indicators of nicotine dependence, e.g. exhaled carbon monoxide. The questionnaire has also been used on a sample of the Greek population in a previous study [17].

Analysis of data was carried out via the SPSS statistics package.
The level of significance was a=0.05 (2-tailed).

Results

Our sample consisted of 45 male (43.3% of total sample) and 59 female (56.7% of total sample) participants. 52% of our sample stated themselves as being smokers and 48% as being non-smokers. Among our smoking sample, 50% (N=27) expressed a desire to quit smoking. Average age and smoking habit are depicted in table 1.

The group of smokers expressing a desire to quit smoking was, on average, older than the group of smokers which did not express any desire to quit. Smokers desiring to quit were also, on average, older than the group of non-smokers in this study (Bonferoni, ANOVA test p<0.05). The same group also displayed a higher number of daily cigarette consumption and had been smoking for a longer time than the group of smokers who did not express a desire to quit (T-test p<0.05, table 1).

Gender was not significantly correlated with any of our three participant groups (test x2 p>0.05, table 2). Among our smoker group, the percentage of female participants did not display any statistical difference in terms of age, daily amount of cigarette consumption or of years of habitual smoking (T-test p>0.05). No statistical difference in terms of average age was found for the female population in our non-smoker group as well (T-test p>0.05).

Smokers scored 4,39±3,0 on average on the Fagerstrom scale for nicotine dependence. Male smokers scored 5,08±3,29 on average as opposed to female smokers who scored 3,79±2,65 on average, a difference which, however, is not statistically significant (T-test p>0.05). In contrast, smokers who expressed a desire to quit displayed significantly higher levels of nicotine dependence (5.3±2.83) than smokers who did not express any such desire (3,48±2,95, T-test p<0.05).

Mean scores for the SCL 90-R subscales are displayed on table 3. Among our total sample population, female participants scored significantly higher on the somatization subscale (T-test p<0.05, table 4).

In contrast to non-smokers, smokers scored significantly higher on both anxiety (0,74±0,5 VS 0,40±0,35) and depression subscales (0,85±0,59 VS 0,61±0,53; T-test p<0.05) whilst no significant difference was recorded in any other subscale (T-test p<0.05).

Smokers expressing a desire to quit smoking scored higher on subscales for somatization, anxiety, depression and hostility (Bonferoni, ANOVA test p≤0.01, table 3.)

Participant age for smokers was positively correlated with amount of years of habitual smoking, daily amount of cigarette consumption, nicotine dependency and phobic anxiety (Pearson correlation p<0.05, table 5).

Among our sample of smokers, daily amount of cigarette consumption seems to show a positive correlation with most subscales of the SCL 90-R. In particular, daily amount of cigarette consumption showed a positive correlation with the subscales for obsessive-compulsive, interpersonal sensitivity, depression, anxiety, as well as hostility, paranoid ideation and psychoticism (Pearson correlation p<0.05, table 5). A positive correlation was also found between each subscale of the SCL 90-R (Pearson correlation p<0.05, table 5).

Discussion

Ten years have passed since the first studies [7-9] on habitual smoking among health professionals in Greece were conducted and since the enforcement of more stringent legislation on tobacco use, yet the smoking behaviour displayed by health professionals does not seem to have changed in any way. Specifically, one in two health professionals continue to smoke. Meanwhile, females seem to have adopted both the smoking habits and nicotine dependent behaviours more frequently displayed by males.

It is however both interesting and promising that one in two smokers desire to quit smoking. However, it must be noted that individuals desiring to quit smoking can be distinguished on a basis of psychological parameters from the rest of the population of smokers. Specifically, this group of smokers scored higher on scales for somatization, anxiety, depression and hostility. Based on these findings, we could say that smokers who desire to quit smoking seem to experience their nicotine dependence in a more dysphoric way. However, this hypothesis needs to be investigated via more suitable experimental means. The fact that most smokers who wish to quit smoking are of greater age than the rest of the smokers on average, probably plays a significant role in these reported differences.

The strong positive correlation between daily amount of cigarette consumption and compulsivity, interpersonal sensitivity, depression, anxiety as well as hostility, paranoid ideation and psychoticism, although unable to explain habitual smoking, should allow us to consider these psychological parameters as important factors which contribute to the maintenance and severity of the smoking habit. In no way does this correlation allow us to formulate any causal hypothesis for habitual smoking. It is most likely that this correlation points out an interaction among the aforementioned psychological factors involved in habitual smoking. It is possible that the individual smoker seeks the immediate anxiolytic effect of smoking or that smoking triggers some other anxiolytic mechanisms.

Conclusion

Awareness of the adverse consequences of habitual smoking does not seem to influence the smoking habit. As a result, any prevention program or individual attempt to quit smoking focused on the disclosure of information concerning the adverse effects of smoking are most likely to fail. On the other hand, there seems to be a clear relationship between smoking and anxiety. In any case, however, the existence, or lack of, of any causal relationship between psychological factors and smoking can only be investigated by implementing appropriately designed experiments.

Table 1: *Age, years of smoking habit and number of daily cigarette consumption.*

		AGE	YEARS OF SMOKING HABIT	DAILY CIGARETTE CONSUMPTION
NON SMOKERS	Mean	34.62	0.00	0.00
	N	50	50	50
	SD	8.30	0.00	0.00
SMOKERS	Mean	35.00	14.17	17.89
	N	27	27	27
	SD	6.66	7.24	9.77
SMOKERS WHO DESIRED TO QUIT SMOKING	Mean	40.77	20.88	24.62
	N	27	27	27
	SD	9.39	9.65	10.27
TOTAL	Mean	36.32	18.05	21.92
	N	104	104	104
	SD	36.32	18.05	21.92

Table 2: *Gender and habitual smoking*

	MALE	FEMALE	TOTAL
NON SMOKERS	20	30	50
SMOKERS	14	13	27
SMOKERS WHO DESIRED TO QUIT SMOKING	11	16	27
TOTAL	45	59	104

Table 3: *Mean (SD) of the SCL-90R subscales*

		SOM	OB/C	INS	DEP	ANX	HOS	PHA	PAI	PSY
NON SMOKERS	Mean	.52	.65	.55	.61	.40	.52	.11	.53	.17
	N	50	50	50	50	50	50	50	50	50
	SD	.49	.51	.45	.52	.35	.59	.20	.53	.23
SMOKERS WHO DESIRED TO QUITE SMOKING	Mean	.50	.73	.52	.67	.60	.52	.12	.40	.24
	N	27	27	27	27	27	27	27	27	27
	SD	.44	.62	.53	.56	.56	.57	.26	.50	.44
SMOKERS WHO DID NOT EXPRESS A DESIRE TO QUIT SMOKING	Mean	.83	.95	.81	1.03	.87	.97	.20	.76	.41
	N	27	27	27	27	27	27	27	27	27
	SD	.53	.63	.61	.56	.55	.79	.26	.73	.46
TOTAL	Mean	.59	.75	.61	.73	.57	.64	.14	.56	.25
	N	104	104	104	104	104	104	104	104	104
	SD	.50	.58	.52	.56	.50	.67	.23	.59	.37

SOM: Somatization, OB/C: Obsessive-Compulsive, INS: Interpersonal Sensitivity, DEP: Depression, ANX: Anxiety, HOS: Hostility, PHA: Phobic Anxiety, PAI: Paranoid Ideation, PSY: Psychoticism.

Table 4: *Mean (SD) scores in the SCL-90R subscales as to genders*

	GENDER	N	Mean	SD
Somatization	Males	45	.46	.43
	Females	59	.70	.53
Obsessive-Compulsive	Males	45	.78	.64
	Females	59	.72	.53
Interpersonal Sensitivity	Males	45	.57	.50
	Females	59	.64	.55
Depression	Males	45	.66	.52
	Females	59	.79	.59
Anxiety	Males	45	.50	.47
	Females	59	.63	.52
Hostility	Males	45	.54	.55
	Females	59	.71	.74
Phobic Anxiety	Males	45	.12	.25
	Females	59	.15	.22
Paranoid Ideation	Males	45	.48	.54
	Females	59	.61	.62
Psychoticism	Males	45	.23	.38
	Females	59	.26	.37

Table 5: *Correlations between SCL-90R subscales, Fagerstrom, years of smoking habit, number of daily cigarette consumption and years of age of the participants.*

		AGE	SH	DCC	SOM	OB/C	INS	DEP	ANX	HOS	PHA	PAI	PSY
YEARS OF SMOKING HABIT (SH)	r	.916											
	p	.000											
NUMBER OF DAILY CIG- ARETTE CONSUMPTION (DCC)	r	.289	.356										
	p	.034	.008										
SOMATIZATION (SOM)	r	.146	.083	.133									
	p	.293	.549	.338									
OBSESSIVE-COMPULSIVE (OB/C)	r	.024	.039	.363	.580								
	p	.861	.781	.007	.000								
INTERPERSONAL SENSI- TIVITY (INS)	r	.020	.012	.339	.520	.566							
	p	.885	.933	.012	.000	.000							
DEPRESSION (DEP)	r	.054	.019	.310	.736	.747	.649						
	p	.697	.893	.023	.000	.000	.000						
ANXIETY (ANX)	r	.127	.085	.314	.701	.631	.587	.849					
	p	.359	.543	.021	.000	.000	.000	.000					
HOSTILITY (HOS)	r	-.024	-.054	.270	.441	.561	.629	.610	.646				
	p	.865	.700	.048	.001	.000	.000	.000	.000				
PHOBIC ANXIETY (PHA)	r	.271	.277	.263	.390	.483	.453	.446	.563	.241			
	p	.047	.042	.055	.004	.000	.001	.001	.000	.080			
PARANOID IDEATION (PAI)	r	+.040	.008	.470	.361	.526	.763	.574	.578	.679	.287		
	p	.774	.955	.000	.007	.000	.000	.000	.000	.000	.035		
PSYCHOTICISM (PSY)	r	.113	.068	.379	.309	.463	.617	.472	.527	.558	.642	.594	
	p	.417	.627	.005	.023	.000	.000	.000	.000	.000	.000	.000	
FAGERSTROM	r	.311	.366	.423	.130	.089	-.206	.121	.068	-.142	-.085	-.115	-.080
	p	.022	.006	.001	.351	.524	.135	.385	.626	.306	.543	.409	.565

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