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## Smoking frequency, cessation knowledge; attitudes and beliefs among internal and surgery residents

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### ABSTRACT

Smoking is a worldwide problem affecting large number of people with serious consequences. Fighting with this addiction requires involvement of all health professionals regardless of their specialty and working posts. This study is designed to investigate the difference and similarities between internal and surgery specialty residents regarding the smoking frequency, cessation knowledge, attitudes and beliefs. 121 internal and 30 surgery specialty residents volunteered for the study. They filled a questionnaire of 35 items about smoking status (The addiction level if they smoke), knowledge about cessation and beliefs. While 15.8% (n=24) smoked, 12 (7.9%) were ex-smokers. Internal specialty residents had more right answers compared to surgery residents ( $t=7.425$ ,  $p=0.002$ ). Although 92% of the residents said that providing smoking cessation services are important only 33 (21.9%) of them were provided smoking counseling services. Residents who participated in our study believe that neither their under graduate (72.9%) nor post graduate medical training (62.9%) was satisfactory in this topic.

#### Keywords:

Cessation  
Internal  
Residents  
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### 1. Introduction

As more than five million people die because of direct effects of tobacco smoke whilst many of them suffer many serious diseases ranging from cardiovascular diseases to chronic obstructive pulmonary disease and different kinds of cancer (WHO, Accessed June 2015). Cooperation between fields of politics, economics and medicine is needed to achieve satisfactory progress in overcoming tobacco addiction. Regardless of their specialty, physicians' responsibilities in the fight against smoking can be grouped under three main goals; to ensure that non-smokers do not start (especially children and teenagers), to help smokers to quit (especially more vulnerable individuals such as pregnant women and children) and lastly to encourage ex-smokers not to relapse

(Zwar et al., 2014). Although most smokers (>70%) visit their physicians annually, only 25% to 45% receive advice on quitting, and only 15% receive professional help (Ellerbeck et al., 2001). Yet minimal interventions lasting less than three minutes increase overall tobacco abstinence rates (McIvor et al., 2009). Several studies have shown that many physicians lose motivation and interest in promoting these services (Ferry et al., 1999; Richmond, 1999; Richmond et al., 2009). A heavy work load and insufficient time, a lack of systems to support cessation services and an absence of financial incentives are some factors that have been investigated to account for this situation (Frank et al., 2007; Chatkin and Chatkin, 2009). Many physicians report feeling insufficient confidence in their counseling skills and believe that the most important

obstacle to promoting these activities is a lack of adequate training and skills (Springer et al., 2008). Another dimension of the problem is the high rates of smoking among doctors (Davis, 1993). It is known that smoking ratio is increasing in years within medical students (Richmond et al., 2009). A view of a smoking doctor is a priceless advertisement to tobacco industry while demotivating several smokers to encourage a quit attempt (Pipe et al., 2009). Smoking health professionals constitute a barrier in smoking cessation conversations with the patient and convincing the patient may become harder. However several specialties like family medicine, internal medicine and respiratory are more concentrated on smoking cessation activities compared to surgical specialties (General surgery, neurosurgery etc.). One of the aims our study is to compare the smoking ratios between internal and surgical specialty residents. We also investigated the difference between internal and surgical specialty residents of their knowledge, experience and approach of smoking cessation.

## 2. Material and methods

### Design

This study was designed as a descriptive and analytic study. It was conducted in Ondokuz Mayıs University (OMU) Medical Faculty between May and August 2014. The study universe was the residents who were under training whether in surgical or internal specialty curriculum. At this time period a total of 318 residents were registered under post graduate training in OMU. A total of 258 (60%) residents were present during the study. The remaining residents were whether on holiday or on rotation. The residents who were under training at basic medical sciences (anatomy, physiology, biochemistry etc.) or diagnostic specialty curriculum (pathology, radiology etc.) were omitted from the study ( $n=98$ ). Power analyses revealed that considering 5% margin of error and 95% confidence level, a total of 135 residents (weighted according to the total number of internal and surgical specialist residents) will be enough to represent the whole. A total of 151 residents (121 internal and 30 surgery) volunteered to participate in the study. Most of the residents who didn't participate in the study stated that whether they simply didn't interest in study or due to the lack of time. All of the participants answered a structured questionnaire. This questionnaire was consisted of 35 questions with several 5-point Likert scale questions. In the first part of the questionnaire demographic and professional data about them were asked. In the second part their beliefs and attitudes about smoking cessation were asked. In the last part the knowledge level about smoking cessation was tested by several multiple choice questions. Each topic was assessed with different number of question and right answers for each topic was grouped and compared according to the specialties of the residents (internal or surgery). There were four items for health risks caused by smoking, two for cardiovascular risk reduction by quitting, four items for cancer risk reduction by quitting, and four items for withdrawal symptoms. The knowledge and methods for smoking cessation were also investigated by several multiple choice questions. Two items for withdrawal symptoms, two items for principles of motivational interview, three items for principles of nicotine replacement therapy, Bupropion and Vareniclin respectively each. The right answers for 27 items were added in every resident and their mean numbers of right

**Table 1.** The demographic, professional and smoking features of the participants

<b>Gender</b>	Male	n= 71	46.5%
	Female	n= 80	53.5%
<b>Specialty</b>	Internal	n= 121	78.1%
	Surgical	n= 30	31.9%
<b>Smoking status</b>	Smoker	n= 24 (10 Internal, 14 Surgical)	15.9%
	Ex-smoker	n= 12 (10 Internal, 2 Surgical)	8%
	No-smoker	n= 115	76.2%
<b>FNTD score mean</b>	Internal	2.41±0.8	t=0.894
	Surgery	4.2±0.5	p=0.160
<b>Package/year</b>	Internal	6±2.1	t=1.098
	Surgery	9±2.5	p=0.080

**FNTD:** Fagerstrom test for nicotine dependency

answers were obtained. The Fagerstrom Test for Nicotine Dependency (FTND) scores and the amount of package/year were calculated for residents who were smokers.

### Fagerstrom Test for Nicotine Dependency

The FTND is a six item self-report scale frequently used around the world in order to determine the levels of nicotine addiction (Heartherton et al., 1991). Although this test is based on the Fagerstrom Tolerance Test it has a better consistency between and is more easily answered. In terms of the overall logic of this test, it is based on number of cigarettes smoked and length of the smoking-free periods. The instrument yields dependency score between 0 (low) and 10 (high). In accordance with this questionnaire scoring, participants taking 0-2 points were classified as low dependent, 3-7 points as medium dependent and 8-10 points as highly dependent.

### Package/year

This item is calculated by multiplying the amount of time and package of cigarette smoked for that particular year. For example a three year addict smoked app.  $\frac{1}{2}$  package for the first two year and 1 for the last one. The package/year score is calculated as  $(2 \times \frac{1}{2}) + (1 \times 1) = 2$ . The high results indicate high density of cigarette smoking in a limited time period.

### Statistical analysis

The SPSS 20.0 package software was used in analysis. The age, residency year, package/year, FTND and the mean of the true questions of items answered by the residents were accepted as independent variables while the Likert answers of questionnaire were accepted as dependent variables. Several parametric and non-parametric statistical analyses were executed. Kolmogorov-Smirnov, Mann Whitney-U test. Pearson Chi Square and Fisher Exact Test were used in the comparison of qualitative data. Post Hoc Analyses were used in groups more than two. A value  $p < 0.05$  is accepted as statistically significant.

## 3. Results

The demographic, professional and smoking features of the participants are presented at Table 1. The male residents were two years older than the females' ( $30.4 \pm 3.9$  versus  $28.3 \pm 2.9$  years) ( $p < 0.001$ ,  $t = 3.674$ ).

Smoking rate was 7.5% ( $n=6$ ) in females and 25.4% ( $n=18$ ) in males. 5% ( $n=4$ ) of the female residents were ex-

**Table 2.** The beliefs, ideas and attitudes of residents about under and postgraduate medical education about smoking cessation, consultancy

Items	I don't agree* n; %	No opinion n; %	Possible n; %	Agree n; %
Smoking cessation services are important	9 (5.9%)	4 (2.6%)	62 (41.0%)	73 (48.3%)
I am confident that I can provide smoking cessation consultation	61 (40.3%)	47 (31.1%)	35 (23.1%)	7 (4.6%)
My undergraduate training is satisfactory in this topic	108 (69.6%)	16 (10.5%)	25 (16.5%)	1 (0.6%)
My postgraduate training is satisfactory in this topic	103 (68.2%)	11 (7.0%)	25 (16.5%)	12 (7.9%)

\*The participants who gave answer "I don't mostly agree" and "I don't agree" are combined together

smokers and 11.1% (n=8) were male residents. When smoking and quitting rates were compared, there was a significant difference between males and females ( $p=0.001$  respectively). The mean FNTD scores was  $3.21 \pm 2.93$  and package/year was  $8 \pm 7$  among the residents. Although smoking rates were significantly higher in surgery residents ( $x^2=1.207$ ,  $p=0.039$ ), the mean of package/year and the Fagerstrom scores between internal and surgical specialty residents were not statistically significant ( $p=0.160$  and  $p=0.080$  respectively). Among ex-smoker residents only a resident used medication for cessation whiles the others who quitted without any professional help. 12 (50%) residents had tried at least one attempt to quit smoking, 5 (20.8%) residents stated that they don't want to quit smoking and 12 (50%) residents didn't believe that they could succeed to quit smoking if they desire.

A total of 33 (21.9%) residents stated that they have provided smoking counselling services. The residents' beliefs and ideas about under and post graduate medical education about smoking cessation consultancy experiences are presented at Table 2. The internal specialty residents had more confidence in order to provide smoking cessation consultation compared with the surgery residents ( $t=1.206$ ,  $p=0.002$ ) and they provide more smoking cessation services compared to surgery residents ( $x^2=2.245$ ,  $p=0.044$ ). There was no statistically significant relation between the adequacy of the under and postgraduate smoking cessation training between internal residents and surgical residents ( $p<0.05$ ).

The knowledge level of the internal and surgery students about the knowledge levels about health risk caused by smoking, cardiovascular and cancer risk reduction with smoking cessation, symptoms of dependency and withdrawal symptoms are shown in Table 3. There were no significant difference between the ratio of right and wrong answers compared between internal and surgery residents ( $p>0.05$ ). 12 (7.9%) residents stated that they were not familiar with nicotine replacement therapy, 31 (20.5%) with Bupropion, 78 (51.7%) with Varenicline and 113 (74.8%) with tricyclic

antidepressants. The mean number of the internal specialty residents had a mean of  $13 \pm 0.7$  (min=2, max=17) right answers while surgery residents had  $9 \pm 0.6$  (min=2, max=14). The internal specialty residents had more right answers compared to surgery residents ( $t=7.425$ ,  $p=0.002$ ). The internal specialty residents had higher mean of right answers to pharmacological (9 items for nicotine replacement therapy, Bupropion and Varenicline) cessation therapy compared with surgical residents. There was no statistical difference between the remaining mean of items (14 items).

#### 4. Discussion

Although the professional attitude and knowledge must not be attributed to the physicians' personal lifestyle it might be a necessity to be a non-smoker model to convince their smoker patients to quit smoking. In the early years of fifties and sixties some doctors were referred in advertisement of several tobacco products in order to encourage people to smoke (Gardner and Brandt, 2006). Garfinkel (1976) had shown that more than 40% of the physicians were smoking at the late fifties. However after some research published by several important research the health risks of smoking were better understood (Doll et al., 2004).

Our study had two main aims. One of these was to determine the smoking ratio in residents who are under different specialty post graduate education. We had found that a total of 15.9% of the residents were smokers which is lower compared to other studies (La Torre et al., 2004; Sahin et al., 2005; Maciejewski et al., 2009). Inandi et al. (2013) revealed that smoking ratio is 28.5% in a study conducted in 12 different medical faculties. There may be some factors to explain this result. Precautions and effective laws against smoking have been put in use in the last decade in Turkey which increased the public attention to the harmful effects of smoking. This negative perspective towards smoking might be increasing among physicians compared a decade ago. Also in our university effective smoking cessation activities

**Table 3.** The ratio of right answers compared between internal and surgical residents about health risks of smoking and principles of smoking cessation

Questions		Internal		Surgery		p*
		n	%	n	%	
Health risks caused by smoking (4 items)	≥ 2 Right answers	98	81%	22	73.3%	p=0.059
Cardiovascular risk reduction by cessation (2 items)	≥ 1 Right answer	96	80%	24	80%	p=0.274
Cancer risk reduction by cessation (4 items)	≥ 2 Right answers	69	57%	18	60%	p=0.075
The symptoms of dependency (4 items)	≥ 2 Right answers	85	70.2%	21	70%	p=0.771
The withdrawal symptoms (2 items)	≥ 2 Right answers	63	52%	11	36.6%	p=0.843
Principles of motivational interview (2 items)	≥ 1 Right answer	46	38%	6	26.6%	p=0.094
Principles of nicotine replacement# therapy (3 items)	≥ 1 Right answer	39	32.2%	6	20%	p=0.04
Principles of Bupropion# therapy (3 items)	≥ 1 Right answer	16	13.2%	2	6.6%	p=0.02
Principles of Vareniclin# therapy (3 items)	≥ 1 Right answer	12	9.9%	1	3.3%	p=0.03

\*Pearson Chi Square test is used

# Indications, contraindications and prescription of each pharmacological method had been asked

are conducted with several departments (family practice and respiratory diseases). Another finding in our study was the male residents smoking frequency was higher than the females as confirmed by other studies (Sahin et al., 2005; Maciejewski et al., 2009; Inandi et al., 2013). This situation is often explained with social and individual factors (Roberto et al., 1997). In several occasions female smokers are not accepted socially compared to male smokers and females smokers tend to quit smoking when they are planning pregnancy. Our results confirmed that there was a statistically difference between the smoking ratios between internal and surgical residents. Similar to our results Shkedy et al. (2013) revealed similar results. This situation can be explained with burden of surgical specialty post graduate training. Surgery residents might have frequent night shifts and increased amount of stress compared with internal residents. It is well known that several smokers use smoking as an ineffective way to cope with stress however the design of our study permits us to investigate this theory.

The second aim of our study was to determine attitudes, beliefs and knowledge of smoking cessation among different kind of specialty residents. We have determined that about 80% of our participants didn't have consultancy experience before. However in a meta-analyses Smith and Leggat, (2007) underlined that rates of doctors providing cessation services around the world is increasing comparing past. Increasing rate of smokers around the world especially developing countries prevents physicians to neglect this problem. However in many occasions physicians don't have confidence or have motivation to provide this service (Meshefedjian et al., 2010; Aryayev et al., 2014). Our results also revealed that although nearly all of the residents believe that smoking cessation services are important (91.6%), only a small percentage confirmed that they felt confidence in order to perform it (22%). We have also found that internal residents fell more confidence providing smoking cessation services compared to their surgeon colleagues. In a study which is conducted among surgeons from Chinese it has been found that smoking rate was found high while knowledge, and cessation attitude levels were unsatisfactory (Yao et al., 2009).

The residents in our study had relatively good knowledge about health risks caused by smoking and importance of cardiovascular or cancer risk reduction their knowledge towards smoking cessation is very limited. When the knowledge level of the different specialty residents compared it was noticed that although the knowledge level of health problems caused by smoking, risk reduction with quitting is similar between internal and surgery residents, internal specialty residents

had better knowledge about pharmacological approach to smoking cessation. This situation can be explained by as the most of the residents acquire basic knowledge about harmful effects of smoking from their undergraduate. Several faculties around the world just embed the theoretical knowledge of health risks of smoking and its relation with several important diseases into curriculum (Richmond et al., 2009). Medical students or residents graduate from medical schools without any clinical experience or training for smoking cessation. The internal specialty residents acquired the necessary knowledge and skills for smoking cessation from their post graduate medical education although it is very limited. Residents who participated in our study believe that either their undergraduate (72.9%) or post graduate medical training (62.9%) is satisfactory in this topic. It is not reasonable to expect them to help their patients to quit effectively if they really want to intervene. This process might be very frustrating for both patients and physician because of the chronic nature of this addiction.

Our study has some limitations. First of all the participants included in this study were selected from one medical faculty. This situation limits to generalize its outcomes. Also the number of surgery residents included in this study is limited due to their limited availability and low motivation to participate in the study. However the numbers of the participants in our study are rather high in order to compensate this handicap. As mentioned in the struggle against smoking it is more important to provide prevention services (protect non-smokers and ex-smokers from smoking) is far away more effective compared to smokers to quit. In our study only resident's knowledge and attitudes for providing cessation services to current smokers are investigated. In the former studies these topics must be well investigated.

As a conclusion our results indicate that although participants in this study believe that to help their smoking patients to quit is important their smoking cessation knowledge level is very limited. Surgery residents had lower knowledge level compared to internal science residents. The participants in this study believe that the reason for this situation mostly related to the neglecting of pre and post graduate medical training of this topic. Best methods in order to increase the knowledge and motivation levels in the field of smoking cessation of the residents without the kind of specialty they were training must be investigated. New descriptive and interventional studies are needed to investigate this topic.

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