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Knowledge Regarding Nutrition, Attitude and Practice of Smokers and Non-Smokers

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ABSTRACT

Background: *Generally, non-smokers have healthier lifestyles compared to smokers. Typical foods eaten more by non-smokers are fruits and vegetables, whereas smokers eat more meat and fat and drink more alcoholic beverages. We aimed to compare nutritional knowledge, attitude and practice (KAP) of smokers participating in smoking cessation clinics with their non-smoker family members.*

Materials and Methods: *Two hundred twenty-six smokers and 260 non-smokers aged 18 years and over were compared in a cross-sectional study. A Likert type KAP questionnaire including 36 items was used. Knowledge and attitude scores were compared between smokers and non-smokers using the Mann-Whitney test. Practice patterns were compared by the Chi-square test. Differences were significant at p =0.05.*

Results: *The mean age of male smokers and non-smokers were 38.5±11 and 33.5±14 years respectively and in women these rates were 42±10.4 and 31.3±15 yrs. respectively (p<0.0001). In males, the mean percentage of knowledge in non-smokers was higher than smokers (2.41 vs. 1.85) and the average score of attitude in smokers was less than that of non-smokers (37.5 vs. 37.9; the differences were not significant). Sixty (26.5%) smokers and 93 (35.8%) non-smokers reported having regular physical activity (p=0.005). In women, the mean percentage of knowledge in non-smokers was higher than smokers (3.37 and 2.93 respectively; the difference was not significant). Attitude score of female non-smokers was higher than smokers (40.3 vs. 37.1; p=0.001). Among female non-smokers, 68 (46.9%) reported daily meat consumption; this rate for female smokers was 41 (56.2%; p=0.001). Female non-smokers consumed daily breakfast more than female smokers (107, 73.8% vs. 35, 47.9%; p=0.001).*

Conclusion: *Our data showed a significant difference in nutritional KAP between smokers and non-smokers.* ***(Tanaffos 2008; 7(2): 36-44)***

Key words: *Smoking, Knowledge, Attitude, Practice, Nutrition*

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INTRODUCTION

Generally, non-smokers have healthier lifestyles compared to smokers (1). They also have different diets. Non-smokers use fresh fruits and vegetables more often whereas, smokers' dietary intake includes mostly meat, fat and alcoholic beverages (2). However, smokers usually have a lower weight compared to non-smokers (3). Almost 80% of smokers gain weight after they quit smoking (4). Despite the lower weight in smokers, incidence of diseases such as cancer, cardiovascular and pulmonary diseases as well as morbidity and mortality rates are higher in them (5).

In some studies, the post-cessation weight gain or concerns in this regard are among the reasons for relapse especially in women (4-6). Obesity is highly correlated with environmental, socio-economical and behavioral factors (7,8). But eventually, the balance of energy plays the main role in development of obesity. For example, increased intake of saturated fat and energy, insufficient physical activity and lack of exercise are among the factors mainly responsible for obesity (9,10). In spite of biologic factors, cultural factors i.e. nutritional knowledge, attitude and practice, and social-individual factors also play an important role in genesis of obesity (8,11).

Evaluation of knowledge, attitude and practice (KAP) reveals valuable information on health and influential factors. These evaluations can be used as a means for determination of the social health status and influential factors in this regard and providing adequate healthcare services. Determination of nutritional knowledge, attitude and practice of patients can be effective in guiding interventional strategies for healthcare and obesity (12,13). At present, many efforts are made to encourage smokers to quit smoking (14).

There are two smoking cessation clinics in Tehran working under the supervision of the Iranian Society Against Tobacco Use. They offer educational-therapeutic programs to those interested in quitting smoking.

The smoking cessation program offered in these clinics includes several parts. Smokers usually register for participation by phone. Each course takes 3 weeks starting from the first day of the solar month. Those registered for the classes are contacted by phone to attend the classes. Each course includes 6 educational sessions. These sessions are public and each takes 1.5 hours. Information and health recommendations are offered by a physician and participants become familiar with cessation methods. Also, some exercises are recommended and several educational movies are shown. The following actions are performed during the 6-session course:

- Making a cessation file for the smoker which includes demographic data, and the completed questionnaire of knowledge, attitude and practice regarding tobacco use especially cigarette smoking,
- Starting the cessation period by discarding the cigarette and consuming 2-mg nicotine chewing gum, filling out the above-mentioned questionnaire again ("Do you know" form).
- Providing the participants with a form about the conditions and complications that may occur during the following week and accomplishing the course by filling out another form regarding the attendance of the smoker in the program, his/her success in quitting and reasons of relapse (detected by the physician).
- In addition to the afore-mentioned forms, another form called clinic report is completed by the physician for each and every one of the participants.

Since no data was available regarding the dietary

intake and dietary choices of the participants in the forms of the smoking cessation clinic, we decided to include the nutritional knowledge, attitude and practice questionnaire to evaluate the knowledge, beliefs and dietary intake of participants. This study aimed to evaluate the nutritional knowledge, attitude and practice of smokers attending the smoking cessation clinic programs of the National Research Institute of Tuberculosis and Lung Diseases at Masih Daneshvari Hospital and compare them with non-smokers.

MATERIALS AND METHODS

This was an analytical cross-sectional study. During 6 months, all smokers participating in smoking cessation programs were asked to fill-out the nutritional knowledge, attitude and practice questionnaire. As the control group, smokers were asked to pass the questionnaire to their non-smoker family members for completion and return it to the researchers in their next visit to the clinic. The project goals and the importance of their truthful answers were thoroughly explained to the participants.

The questionnaire was comprised 4 sections 1) demographic data and history of smoking 2) knowledge 3) attitude and 4) practice.

The first section contained questions regarding age sex, educational level, history of smoking and number of cigarettes smoked per day. Each section of "knowledge"," attitude" and "practice" included 10 questions. Nutritional knowledge was measured using 3-item multiple choice questions and the choices were "true" "false" and "I don't know". For every correct answer, +1 point, for every false answer -1 and for "I don't know" zero points were considered. In this way, the maximum and minimum score obtainable in this part was +10 and -10 respectively. The mean score gained in this section was calculated for each group. The "attitude" was measured using 10 Likert questions and the choices were "I absolutely agree"," I agree", "no comment", "I disagree" and "I absolutely disagree". In positive sentences the scoring was as follows:

I absolutely agree	+5 points
I agree	+4 points
No comment	+3 points
I disagree	+2 points
I absolutely disagree	+1 points

The scoring for negative sentences was reverse.

In this way, the maximum and minimum scores obtainable were +50 and +10 respectively. The mean score gained in this section was calculated for each group.

The "practice" section had multiple choice questions with 3 answer choices of "Yes", "No" and "Sometimes". The results of this section were presented as percentage.

Statistical analysis:

To compare the frequency distribution of subjects in the two groups of smokers and nonsmokers in terms of age, sex and level of education, chi-square test and t-test were used for qualitative variables and quantitative variables respectively.

Mann-Whitney and chi-square tests were used to compare the mean scores of "knowledge" and "attitude" and for comparing the percentages ($p=0.05$ was considered significant).

RESULTS

A total of 486 individuals enrolled in this study out of which 268 (55.1%) were males. The mean age of smokers and non-smokers was 39.5±11 and 32±14.5 yrs. respectively. This difference was statistically significant ($p<0.0001$). Other characteristics of these individuals are shown in

Table 1.

To evaluate the level of education, the mean number of study years was compared which was 13.03 yrs in smokers and 13.15 yrs. in non-smokers and the difference was not statistically significant.

Table 1. Demographic characteristics of the under-study population.

	Smoker	Non smoker	P-value
Gender	Number (%)	Number (%)	
Female	73 (32.3)	145 (55.8%)	0.001
Male	153(67.7)	115 (44.2%)	

A comparison was performed between smokers and non-smokers based on gender and between the two groups of males and females.

There was a significant difference between smokers and non-smokers in terns of gender; therefore, all analyses were performed based on gender and in 2 phases. In phase 1, subjects were compared in terms of gender in each group of smokers and non-smokers. The mean score gained in the "knowledge" section was generally higher among women and in both groups of smokers and nonsmokers, the mean score of women showed a significant difference when compared to that of men. Such a difference was not detected in mean scores gained in the "attitude" section by males and females in the smokers group. But in the non-smokers group, women gained a significantly higher score ($p<0.005$).

In the 2nd phase of analysis, smokers and non-smokers were compared in both sexes separately in a way that smoker women were compared with non-smoker women and smoker men were compared with non-smoker men. In all parts, the non-smoker group gained higher scores except for attitude. Smoker and non-smoker women showed a statistically significant difference in attitude ($p<0.001$, Table 2).

In the "practice" section, each question was evaluated and compared separately in smoker and non-smoker groups and in both sexes and the results are listed in Table 1.

Dietary intake was also compared in smokers and nonsmokers and based on gender.

Among women, at least one meal of red meat per day, weekly consumption of legumes, eating pickles with the food and having breakfast daily were significantly lower in smokers ($p<0.005$). Also, having fried dished less than twice a week among female smokers was significantly higher than female non- smokers ($p<0.005$).

Smoker and non- smoker men showed a significant difference only in following a regular exercise program in a way that non-smoker men followed an exercise program to control their weight more regularly than smoker men ($p=0.001$).

Dietary intake showed no significant difference between smoker and non-smoker men.

Table 2. Mean score of knowledge and attitude in men and women regarding smoking pattern

	Women			Men		
	Smoker	Non smoker	P-value	Smoker	Non smoker	P-value
Mean score of knowledge	2.93 ±2.78	3.37 ±2.76	NS	1.85 ±2.95	2.42 ±2.64	NS
Mean score of attitude	37.13 ±5.73	40.3 ±4.8	0.001	37.56 ±5.45	37.97 ±4.6	NS

DISCUSSION

1- Nutritional Knowledge:

This study showed no significant correlation between smoking and knowledge of nutrition in both sexes. Nutritional and health knowledge was higher in non-smokers in both groups of men and women but this difference was not significant. Since level of education (number of study years) in both groups of smokers and non-smokers was similar in men and women and showed no significant difference, level of education cannot be a confounding factor in this study. This finding indicates that smokers and non-smokers were similar in terms of receiving nutritional and health information through the media.

Other studies in this regard indicate that the nutritional knowledge of non-smokers is higher than smokers (15,16). This might be due to the fact that smokers are less willing to accept some habits as unhealthy behaviors (at least in relation to their own health) (15).

In our study mean nutritional knowledge of women in both groups of smokers and non-smokers was significantly higher than men which was in accord with other studies (15,17). This indicates the higher tendency and attention of women to nutritional and health behaviors as well as self-care behaviors.

2- Nutritional attitude:

In this study, no correlation was found between smoking and attitude towards nutritional and health behaviors in men. However, non-smoker men had a better nutritional attitude. But, a significant correlation was found between smoking and their attitude regarding nutritional and health behaviors in women. Non-smoker women had a significantly better attitude than smoker women. These findings are in accordance with other studies (16,18).

Since there was a significant difference in the attitude of smoker and non-smoker women, other differences between the two groups can be mentioned. Generally, smokers have many high- risk behaviors despite smoking such as drug abuse and high consumption of alcohol and usually have an unhealthy lifestyle (19,20). This explains the bad attitude of smokers regarding nutritional and health behaviors.

According to the results of this study, mean nutritional attitude of women was better than men but this difference was statistically significant only in smokers. This emphasizes the fact that women pay more attention to health and self-care behaviors which has been shown in similar studies as well (18).

3- Nutritional practice:

This study showed that smokers and non-smokers are different with regard to their nutrition. Non-smokers have a healthier dietary intake and follow an exercise program more regularly than smokers. Dietary choice and quality of nutrition should be evaluated in both groups. Nutrients are not consumed separately and they are part of the dietary intake; therefore, overall dietary intake should be evaluated for the assessment of nutrition (21).

Male smokers consumed red meat more than non-smokers (at least one meal of red meat per day). However, non-smoker females consumed red meat (at least one meal per day) significantly more than smoker females.

Our findings in this regard in men was in accord with other studies indicating that male smokers have a higher tendency to consume red meat (22,23).

Also, our results about women are in accord with the results of two other studies indicating that female smokers consume red meat significantly less than non-smoker women (21,24).

Daily intake of red meat especially in large portions is very unhealthy due to the high content of

saturated fat and can put one in high risk of various chronic diseases especially cardiovascular diseases and atherosclerosis if accompanied by smoking (25). In both groups of men and women, non-smokers had breakfast every day more often compared to smokers. However, this difference was significant only in women. The fact that non-smokers eat breakfast more often than smokers has been mentioned in other studies as well (26,27).

Smokers especially women use smoking as a method to loose weight and prevent obesity (28,29). They also skip daily meals especially breakfast (because they think it is not important) to stay in-shape. Skipping breakfast can be a predisposing factor for obesity. Because one is hungry during the morning hours and therefore, turns to snacks and junk foods which are usually chosen among high-calorie but low-value meals (11,30).

Regarding the consumption of fibers including fruits, vegetables, legumes, whole wheat bread and cereals by smokers and non-smokers, smokers consumed fibers less than non-smokers (1,17,23,31). In this study we evaluated the weekly consumption of legumes and concluded that in both groups of men and women, non-smokers consumed legumes more than smokers. However, this difference was only significant in women. A few studies have compared the consumption of legumes by smokers and non-smokers. Subar and colleagues reported that smokers in all age groups and different ethnicities consume fibers especially legumes less than non-smokers (22). It seems that less consumption of fibers especially legumes is due to the metabolic effects of nicotine on taste in smokers (2,22,23). Nicotine changes physiological reactions related to appetite, sense of smell and sense of taste and consequently decreases the tendency to consume fresh fruits, vegetables and sweet foods such as fruit juices and smokers usually do not have an appetite for fibers (1,15,32).

Smoker women reported eating fried dishes significantly less than non-smoker women (less than twice a week). This finding is in contrast with the results of other studies reporting that smokers consume fried and high- fat foods more than non-smokers (33). It seems that lesser consumption of fried food in smoker women in our study was to loose weight and prevent obesity.

Non-smoker men exercised more regularly than smokers, but no significant difference was detected in this regard among smoker and non-smoker women.

Our finding regarding following a more regular exercise program by non-smoker men is similar to other studies (17,26,34,35).

However, we did not find a difference between the physical activity of smoker and non-smoker women. This may be due to the limitation of space and facilities for women's exercise in Iran. The cost of attending a gym is high and not affordable by various classes of the society. Therefore, only a very small percentage of Iranian women are able to exercise and it does not seem to have a correlation with smoking.

Women usually confront so many limitations and obstacles socially and individually (36, 37) and because of their household tasks and children have less time to participate in physical exercise programs (38).

CONCLUSION

Despite so many insignificant differences between the two groups of smokers and non-smokers in both sexes some significant differences were found which were nutritional attitude, consumption of at least one meal of red meat per day, daily consumption of breakfast, less than twice a week consumption of

fried foods and weekly consumption of grains and cereals in women and physical activity in men. Generally non-smoker women had the highest level of knowledge and nutritional attitude among non-smoker and smoker men and women which is indicative of their attention to nutritional health and self-care.

Smokers had an unhealthier dietary intake. The best recommendation for smokers is to quit smoking. Efforts to quit by increasing the level of knowledge, offering health and nutritional information, giving nutritional education via a smoking cessation program can help increase smokers' level of knowledge and attitude and improve their eating habits.

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