Lifestyle risk factors associated with cancer prevention among residents of Tehran

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A B S T R A C T

Background: Life style is an important element to prevent the cancer. Therefore, this study aimed to determine life style risk factors of Tehran citizens as well as to prevent cancer.

Methods: This study is a descriptive - analytic research with Sample size of 2500 Tehran citizens. The study data was collected via a questionnaire that contained 2 parts: demographic and questions related to life style cancer. Its validity and reliability was determined through content validity and Alfa-Cronbach test. Data was collected in one time and in front of the interviewer. Data analysis was done by SPSS software and descriptive and inferential statistics. The participants' life style was assessed at three levels of satisfactory level 80-100%, moderately satisfactory level 60-79/9% and not satisfactory level0%-59/9%.

Results: 40/4% of the subjects had no direct contact with sunlight. 62% of the subjects had contact with the white matter. 45/8% have sometimes been nervous. 46/7% of the civilian population of normal BMI had poor lifestyle.

Conclusion: Since studied Tehran citizens' life style associated with cancer prevention were not desired in most aspects, life style correction can prevent the cancer to a great extent. It is essential that health and medical authorities specially nurses plan to reform life style, health behaviors and individuals' habits.

Keywords: Cancer; Life style; Iran; Prevention; Risk factor.

21

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Introduction

Annually, more than 10 million new cases of cancer are diagnosed, and more than 20 million people worldwide live with diagnosis of cancer.[1] In Iran, the annual incidence of cancer is about 70,000 cases, and nearly 30,000 deaths are caused by cancer each year, and considering increasing life expectancy and percentage of the elderly population of the country, the incidence of cancer is expected to rise significantly in the coming decades.[2] In addition to threatening life, cancer can cause anxiety and depression in more than 1/3 of patients, and can adversely affect family finances and status. Furthermore, clinical care of cancer claims a significant proportion of the health budget.[1] Nearly 150 human cancer types have been observed, and at least 500 different causes of cancer have been identified. Researchers believe that cancer is the results of concurrent interaction of several factors,[3] but only 5% to 10% of cancers have genetic origins,[4] and 90% to 95% are caused by environmental factors and people's lifestyles. The most important environmental factors include: smoking, obesity, and consumption of alcohol, infections, sunlight, psychological pressures, environmental pollutants, and nutrition.[5] Lifestyle is closely associated with people's socioeconomic status, but also with other factors including roles and activities, work and reading habits, entertaining and relaxing activities, type and location of residence, the effects of cultural beliefs on diet and health, commuting, therapeutic preventive behaviors, and health habits (such as: use of alcohol, medications, nicotine, drugs, and stress levels).[6] Many health problems that are prevalent in most countries today, especially in developing countries, are associated with dramatic changes in people's lifestyles.[7] Studies have shown a direct relationship between people's lifestyle and incidence of cancer, so that role of lifestyle is much more highlighted than other causes in incidence of common cancers, such as breast, prostate, and colon cancers.[8] Cancer prevention involves primary prevention (preventing the incidence of disease) and secondary prevention (early detection of the disease). For primary prevention of cancer, it is necessary to identify causes and factors involved in incidence of cancer. The role of lifestyle is identified with the difference in incidence of cancer among different nationalities, and also

before and after migrations. Thus, prevention of cancer is largely possible through changes in lifestyle. [9] If appropriate actions to prevent cancer were to begin straight away, 2 million cancer-related deaths could be prevented by 2020.[4] To prevent cancer, people's lifestyles should change, and to this end, it is necessary to know them.[6] Through knowing people's lifestyles, necessary countrywide planning could be provided for healthy environment, healthy life models, and community education. Considering the need for knowing people's lifestyles, and the need to reform them to prevent cancer, this study was conducted with the aim to determine lifestyle factors in prevention of cancer among residents of Tehran.

Materials and Methods

This is a descriptive-analytical, cross-sectional study, with statistical population of all residents of Tehran. Those that met study inclusion criteria (over 18 years of age, having no cancer based on self-report, Iranian nationality, permanent residency in Tehran, and desire to complete the questionnaire) were enrolled. Sample size was estimated at 2500 people that were selected from eligible people based on classified random cluster sampling method. Using the map of the city, a statistician determined 83 clusters, made up from 17 clusters in each direction: North (Northwestern to Northeastern), West (Northwestern to Southwestern), South (Southwestern to Southeastern), and East (Northeastern to Southeastern), and 16 in the center. Each cluster comprised 10 households, and with 3 people in each (on average), making a total of 30 people in each cluster.

Based on a study conducted by the Health Deputy of Shahid Beheshti University of Medical Science on status of health of elementary school students in Tehran, in the present study, 83 clusters (among a total of 230 clusters) were randomly selected. Hence, cluster interval of 3 was determined by dividing 230 clusters by 83, and one figure was randomly picked from 1 to 3, given sampling interval, other clusters were extracted from list of existing clusters-heads (230 clusters). Then, interviewers visited people at their addresses, and the next 9 houses were included within the cluster (in sequence, thereafter). If no one was in, or was not willing to cooperate, the next house on the list would be visited (or the next apartment,

if a complex). This procedure was repeated until specified number in each cluster was satisfied. Data were collected over a six-month period (spring and summer 2006). Data were collected using interviews and a questionnaire comprising two parts; the first part included personal details (15 questions), and second part consisted of participants' lifestyle factors. Each part included 6 sub-sections of addiction to alcohol and smoking (12 questions), exposure to sunlight, X-ray, microwave oven and radioactive materials (10 questions), exposure to chemicals (at home and at work), use of hormones (47 questions), and reaction to stressors (13 questions), and food habits (52 questions).

Validity of the questionnaire was determined through content validity. To that end, first required tools were prepared through review of scientific literature, including similar studies, which were then handed to 10 faculty members of School of Midwifery and Nursing, one hematologist, one nutritionist, one food chemistry expert, whose comments were implemented after collecting the questionnaires, and thus, the final version of questionnaire was compiled. Reliability of the questionnaire was determined with Cronbach's alpha. Data were analyzed with SPSS-11.5 software using descriptive statistics and Chi-square test.

In classification, Body Mass Index (BMI) less than 20 was considered slim, from 20-25 normal, from 25-30 over-weight, more than 30 obese, and more than 40 very obese. Lifestyle questions were arranged in Likert scale; the highest correct habit scored 5, and the wrong habit scored 1. Answers "never" and "not applicable" scored zero, and negative questions scored reversely. On the basis of 100 marks, scores from 80% to 100% were considered favorable, 60% to 79.9% relatively favorable, and 0% to 59.9% unfavorable.

Results

The results obtained indicated that most study subjects (74.4%) fitted in 18-45 years age group, and the least number of participants (4.3%) were in the elderly group (over 65 years). The mean age of participants was found 35 years, with standard deviation of 4.38. Other demographic details are presented in **table 1**.

The results based on participants' lifestyle and habits in relation to use of hormones showed that the majority

of subjects did not use contraceptive pills (87.4%), menopausal hormones (94.4%), or body-building hormones (97.7%). The majority (40.4%) had never been exposed to direct sunlight. On the contrary, 22% were always exposed to sunlight. In relation to exposure to domestic chemicals, the majority was exposed to bleachers (62%), insecticides (64.8%), air-fresheners (45.3%), and anti-perspirants (28.6%). In relation to reaction to stressors, most subjects were involved in anger (45.8%), aggression (35.9%), and impatience (36.1%), anxiety (30.9%), and fatigue (34.1%) (**Table 2**).

In relation to dietary status of participants, results indicated relatively favorable level for most participants, in the areas of proteins (55.3%), dairy (64%), and starch (82.1%). While, consumption of most subjects was found relatively favorable to unfavorable in the areas of pulses

Table 1: Demographic details of study subjects			
Subjects		**Number**	**%**
Age .	18-25	762	30.5
	25-45	1098	43.9
	45-65	533	21.3
	>65	107	4.3
Gender	Male	1178	47.1
	Female	1322	52.9
Marital status	Single	929	37.2
	Married	1472	58.9
	Divorced	33	1.3
	Widow	66	2.6
Employment status	Unemployed	167	6.7
	Housewife	647	25.9
	Employed	1097	43.9
	Retired	182	7.3
	Student	407	16.3
Education level	Illiterate	52	2
	Elementary school	197	7.9
	Junior high school	220	8.8
	Senior high school	204	8.2
	High school diploma	1057	42.3
	University degree	770	30.8

Table 2: Frequency distribution of Tehran residents in relation to cancer prevention

Duration of use (in years) Specific habits	1-5		5-10		10-20		20-40	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Shisha	268	66.2	93	23	32	7.9	12	5.2
Pipe	53	71.6	14	18.9	7	9.5	0	0
Cigarettes	191	47.9	66	16.5	76	19	26	16.6
Exposure to workplace chemicals	202	69.4	66	22.7	23	7.9	0	0

(67.1%), canned foods and additives (63.7%), and oils (97.7%).

In relation to subjects' food habits, the results indicated unfavorable levels in areas of pickles (74%), dry nuts (69.7%), drinks (94.2%), fruits (67.7%), and vegetables (90.4%). Furthermore, the majority of participating Tehran residents had relatively favorable lifestyles, with higher than normal BMI; overweight (60.1%), obese (61.1%), and very obese (63.9%). While 46.7% of subjects, with normal BMI had unfavorable lifestyles, and with equal 50% having less than normal BMI (slim), had relatively favorable to unfavorable lifestyles (**table 3**).

Discussion and Conclusion

In relation to subjects' lifestyle and demographic details, study results showed most of the subjects over 45 years old (72.2%) had relatively favorable cancer prevention lifestyles while 49.3% of the subjects in 18-25 years age group had unfavorable lifestyles, and Chi-square test showed a significant relationship between variables of age and lifestyle. In other words, lifestyle improved with aging. These findings are in line with results of a study by Oh et al., titled "Awareness and inclination for vaccination against Papilloma infection to prevent cervical cancer in Korean men and women", which showed men and women over 50 years-of-age were more willing to vaccinate to prevent cervical cancer than those in under 50 years age group.[10] The researchers believe that people may have more desire to have a disease-free, healthy life with aging. Study results revealed most male subjects (63.8%) enjoyed relatively favorable cancer prevention

Table 3: Crude frequency distribution of cancer prevention lifestyles

Variable		Quantity	Percentage
Food habits	Favorable	0	0
	Relatively favorable	1533	61.3
	Unfavorable	976	38.7
Smoking and alcohol	Favorable	77	3.1
	Relatively favorable	161	6.4
	Unfavorable	2262	90.5
Exposure to radiation	Favorable	74	3
	Relatively favorable	495	19.8
	Unfavorable	1931	77.2
Chemicals	Favorable	33	1.3
	Relatively favorable	746	29.8
	Unfavorable	1721	68.8
Reaction to stressors	Favorable	920	36.8
	Relatively favorable	947	37.9
	Unfavorable	633	25.3

lifestyles, while the majority of female subjects (56.8%) had unfavorable lifestyles (P=0.000). Cullati et al. in a study titled "Screening for cancer among middle-aged population" showed that women were more inclined toward cancer prevention than men.[11] The difference could be attributed to work engagements, family, and prob-

lems created by industrialization, where women have to have outside jobs as well as domestic responsibilities, and thus have less time to attend to their health. Study results showed that the majority of participating Tehran residents had unfavorable cancer prevention lifestyles in relation to smoking and alcohol. Meanwhile, researchers have estimated that 25%-30% of all cases of cancer in the United States were related to tobacco use, 30%-35% to diet, 15%-20% to infections, 10%-20% to obesity, and 10%-15% to other factors.[5] Also, the main cause of lung cancer (80%) is attributed to exposure to the first and the second-hand cigarette smoke.[12] Since 1990, lung cancer among South Asian male population has been increasing, due to unrestraint cigarette and tobacco smoking.[13] Although multifactorial disorders are blamed for esophageal cancer, smoking and alcohol are globally considered the most important contributing factors for this cancer.[14] As suggested by results of studies, tobacco is a major factor contributing to cancer (with 100% contribution in incidence of some cancers), but the majority of study subjects did not pay much attention to it which is why they had unfavorable status. Results indicated that the majority of subjects (61.3%) were in an unfavorable condition with respect to cancer prevention lifestyle. Study results concur with those of the study by Oh et al., in which they found a significant relationship between diet and cancer.[10] Moreover, reduced intake of fruits and vegetables leads to increased risk of most cancers, including cancer of the mouth, stomach, esophagus, pancreas, colon, rectum, and cervix, and reduced consumption of leafed vegetables leads to increased risk of breast cancer.[15] Yarnall et al. observed that consumption of fiber-containing foods reduces cancer to 60%.[16] Results showed that 77.2% of the subjects had an unfavorable cancer prevention lifestyle in terms of exposure to radiation (sunlight, microwave oven, X-ray, and radioactive materials). Researchers believe that more than 10% of cancers are caused by radiation.[5] Fizi considers normal exposure to UV and sunlight as the main cause of skin cancer, and argues that people that work in the sunlight, those with fair skins, and those exposed to coal tar, arsenic compounds, radium, or other chemicals in their workplace are at risk of skin cancer.[17] Ninety percent of non-melanoma and 2/3 of melanoma skin cancers are caused by exposure to sunlight.[18] Nickel sulfide present in chemicals used in the industry, causes an increase in incidence of nose and lung cancers.[19] Although arsenic used in industry was considered a carcinogenic factors in the past, with advances in industry, this element is liberally found in water, air, and in food stuff today, and plays an important role in cancers of skin, kidney, liver, and lung.[20] Use of hair dye also exposes the person to cancers such as colorectal, bladder, lung, breast, and leukemia.[21] Based on the findings of the present study, subjects were in a favorable position after coming to contact with chemicals. The researcher thinks the odor of chemicals may have caused them to have less contact with these materials. Study results also revealed anger and anxiety among Tehran residents. Researchers believe that anger and stressors are important factors in incidence of cancers.[22] One of the limitations of the study was the lack of accurate answers to question related to alcohol use, which may have been due to legal and ethical considerations; despite explanation given by researcher concerning confidentiality of the data, it is still possible that subjects may have answered inaccurately. Finally, researchers believe, given that none of the participating Tehran residents had a favorable lifestyle for cancer prevention, it is necessary to pay special attention to reforming people's lifestyles. Also, it is necessary for health care authorities to take action to develop programs for community sensitization and people's attention to their lifestyles. Amid, nurses, especially community health nurses can play a vital role in reform and optimization of health status, and in reforming people's behavior, and through helping people to change their lifestyle, can largely prevent incidence of cancer.

Acknowledgements

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