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Awareness of Tehran residents of seven warning signs of cancer, and application of protective measures against cancer

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ABSTRACT

The present study aimed to determine awareness of Tehran residents of seven warning signs of cancer, and application of protective measures against cancer. 2500 residents of Tehran were selected through systematic cluster random sampling. Data collection tool consisted of a questionnaire, comprising 3 sections of demographic details, awareness of warning signs of cancer, and application of protective measures against cancer. Validity and reliability of the questionnaire were determined through content validity and Cronbach's alpha. Data were collected once and in-person, and were analyzed with SPSS-11.5 software using Chi-square test. As for favorability of their status, 80%-100% was considered favorable, 60%-79.9% relatively favorable, and 0-59.9% unfavorable.

Study results revealed the majority of Tehran residents (66.6%) had an unfavorable status in terms of awareness of warning signs of cancer, and only 9% were in a favorable status. Most participating Tehran residents (78.7%) were in an unfavorable status in terms of applying protective measures against cancer, and only 7.6% had favorable status. A significant relationship was observed between awareness of warning signs and protective measures against cancer. Therefore, it is recommended to increase people's awareness of cancer prevention.

Keywords: ***Warning signs of cancer, Prevention, protective measures, Residents of Tehran***

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Introduction

In addition to involvement of the person, cancer causes stress and involves patient's family,[1] and it is one of the leading causes of mortality in today's world. Annually, more than 10 million new cases of cancer and more than 6 million deaths occur due to cancer worldwide.[2] The world population is estimated to reach 7.5 billion by 2020; of whom, 15 million will be afflicted with cancer, and 12 million shall die of cancer.[3] Currently, cancer is the third leading cause of death in Iran, and claims 30,000 lives each year.[4] Although all cancers are caused by multiple cell mutations, most mutations are due to interaction with the environment,[5] and thus, more than half is preventable.[6] Most cancers and mortality they cause can be avoided by timely preventive actions.[7] Cancer control and prevention methods include primary and secondary preventions. Primary prevention aims to increase people's awareness of carcinogenic factors, and secondary prevention is mainly concerned with screening.[8]

It is necessary for the general public to be aware of prevention and warning signs of cancer. These signs include: changes in bowel or bladder habits, a sore which does not heal, abnormal bleeding, emergence of lumps, difficulty in swallowing and digestion, changes in moles and warts, dry and noisy coughs, and rapid weight loss [9]. Early detection of cancer can reduce mortality rates. Accordingly, attention should be paid to the important role of awareness of seven warning signs of cancer [10].

Prior to any health and educational planning, particularly in relation to chronic diseases such as cancer, it is necessary to recognize people's awareness of warning signs and means of prevention and protective measures against risk factors. To that end, the present study was conducted to assist relevant authorities through benefits from results obtained.

Method and Methods

This is a descriptive-analytical cross-sectional survey, with population of all residents of Tehran that met inclusion criteria: having no cancer during the study based on self-report, having Iranian nationality, over 18 years of age, and permanent residency in Tehran (not guests or transient residents), and willingness to complete the study questionnaire. Sample size was estimated at 2500 people, selected according to systematic, cluster, and random sampling method from among eligible residents of Tehran. Data collection lasted 6 months (spring and summer 2007). Data were collected using interviews and a questionnaire that consisted of 3 sections of demographic details (15 questions), assessment of cancer signs awareness (9 questions), and application of protective measures against cancer (14 questions). The validity of the tool was provided through content validity, and questionnaire was developed by review of literature including similar studies, which were then handed to 10 faculty members of School of Midwifery and Nursing, one hematologist, one nutritionist, and 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 using Cronbach's alpha. To that end, 100 questionnaires were issued to residents in 5 areas (North, South, East, West, and Center) from 7 households in each area, and the reliability was found 85%.

Data were collected once and in-person. Questions were marked according to their values, and total was calculated based on 100 marks. From 80%-100% was considered favorable, 60%-79.9% relatively favorable, and 0-59.9% unfavorable. Awareness was divided into 3 levels of high, moderate, and low.

Results

Study results showed similar geographical distribution of subjects in terms of residency in all areas (North, Center, South, East, and West), which confirms rigor of systematic sampling and uniformity of distribution in the 5 areas of Tehran city. Demographic details are presented in **table 1**. **Table 2** presents the relationship of some demographic parameters with subjects' awareness level. Study results indicated 63.1% (1577 residents) had poor level of awareness of cancer warning signs, 20.6% (514 residents) had moderate level of awareness, and 16.4% (409 residents) had high level of awareness. Levels of subjects' awareness of cancer warning signs are presented in **table 3**. Results also showed that protective measures against cancer in most participating Tehran residents

Table 1: Relative and absolute frequency distribution of participating Tehran residents according to demographic details		
Demographic details	**Quantity**	**Percentage**
Gender		
Male	1178	47.1
Female	1322	52.9
Age (years)		
18-25	762	30.5
25-45	1098	43.9
45-65	533	21.3
>65	107	3.4
Marital status		
Single	929	37.2
Married	1472	58.9
Divorced	33	1.3
Widow	66	2.6
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
Source of information about cancer prevention		
Doctor	366	14.6
Nurse	88	3.5
Personal reading	659	26.4
Media	1128	45.1
Friends	456	18.2
Other	195	7.8
Place of residence in Tehran		
North	510	20.4
Center	510	20.4
South	485	19.4
East	510	20.4
West	485	19.4

Table 2: Relative and absolute frequency distribution of participating Tehran residents according to awareness of warning signs of cancer and demographic details

	Poor awareness		Moderate awareness		Good awareness		Total		Test results
	Quantity	%	Quantity	%	Quantity	%	Quantity	%	
Age (years)									
18-25	547	21.9	122	4.9	93	3.7	762	30.5	χ^2=44.917 df=6 p<0.001 Significant
25-45	651	26.0	261	10.4	186	7.4	1098	43.9	
45-65	308	12.3	110	4.4	115	4.6	533	21.3	
>65	71	2.8	21	8	15	6	107	4.3	
Sex									
Male	731	29.2	251	10	196	7.8	1178	47.1	χ^2=1.082 df=2 p=0.582 Insignificant
Female	846	33.8	263	10.5	213	8.5	1322	52.9	
Marital status									
Single	629	25.2	168	6.7	132	5.3	929	37.2	χ^2=19.169 df=6 p=0.004 Significant
Married	884	35.4	331	13.2	257	10.3	1472	58.9	
Divorced	23	0.9	6	0.2	4	0.2	33	1.3	
Illiterate	41	1.6	9	0.4	16	0.6	66	2.6	
Education level									
Illiterate	45	1.8	5	2	2	0.1	52	2.1	χ^2=91.748 df=10 p<0.001 Significant
Elementary school	136	5.4	29	1.2	32	1.3	197	7.9	
Junior high school	176	7	29	1.2	15	0.6	220	8.8	
Senior high school	147	5.9	35	1.4	22	0.9	204	8.2	
High school diploma	666	26.6	229	9.2	162	6.5	1057	42.3	
University degree	407	16.3	187	7.5	176	7	770	30.8	
Place of residence in Tehran									
North	277	11.1	140	5.6	93	3.7	510	20.4	χ^2=58.791 df=8 p<0.001 significant
Center	340	13.6	102	4.1	68	2.7	510	20.4	
South	352	14.1	74	3	59	2.4	485	19.4	
East	335	13.4	81	3.2	94	3.8	510	20.4	
West	273	10.9	117	4.7	95	3.8	485	19.4	

78.7% (1968 residents) was unfavorable, and only 7.6% (191 residents) had favorable status, and 13.6% (341 residents) had relatively favorable status. Level of subjects' response to questions on protective measures against cancer is presented in **table 4**. According to results obtained, a significant relationship was observed between awareness of warning signs and protective measures, so that protective measures tend toward unfavorable levels with

Continuation Table 2: Relative and absolute frequency distribution of participating Tehran residents according to awareness of warning signs of cancer and demographic details									
	Poor awareness		Moderate awareness		Good awareness		Total		Test results
	Quantity	%	Quantity	%	Quantity	%	Quantity	%	
Source of information about cancer prevention									
Medical team	234	12.5	188	7.5	158	6.3	659	26.4	χ^2=84.796 df=2 p<0.001 significant
Personal information	313	2.7	20	0.8	17	0.7	104	4.2	
Media	6.2	24.1	283	11.3	243	9.7	1128	45.1	
Friends	236	9.4	120	4.8	100	4	456	18.2	
Other	64	2.6	68	2.7	63	2.5	195	7.8	
Employment									
Unemployed	130	5.2	25	1	12	0.5	167	6.7	χ^2=35.486 df=8 p<0.001 significant
Housewife	416	16.6	131	5.2	98	3.9	645	25.8	
Employed	642	25.7	235	9.4	220	8.8	1097	43.9	
Retired	119	4.8	42	1.7	23	0.9	184	7.4	
Student	270	10.8	81	3.2	56	2.2	407	16.3	
Relative's death									
Yes	717	28.7	258	10.3	208	8.3	1183	47.3	χ^2=5.929 df=2 p=0.021 significant
No	860	34.4	256	10.2	201	8.0	1317	52.7	
Relative's affliction									
Yes	286	10.7	96	3.8	79	3.2	443	17.7	χ^2=1.607 df=2 p=0.215 insignificant
No	1309	52.4	418	16.7	330	13.2	2057	82.3	

lower awareness, and vice versa (**table 5**).

Discussion and conclusion

Attending to health threatening risks is the key to prevention of diseases.[11] Since studies conducted on cancer have shown a direct relationship between awareness, practice, and timely diagnosis of cancer,[12] people's awareness of signs of cancer is an important factor in cancer prevention practice. Study results showed that the majority of people with high level of awareness of warning signs are aged 25-45 years, while Eun et al. in a study in 2009, titled "Belief in screening for detection of breast cancer among older women" showed that with aging, desire for awareness of risk factors of cancer and early detection methods, and desire for treatment increase.[13] The present study results showed most people with university education had a good level of awareness, which is in line with results of a study by Stark et al. on cervical cancer.[14]

Study results indicated that married people had higher levels of awareness. Mutyaba et al. in 2009 also showed that having a spouse encourages women's follow-up to screen for cervical cancer, and women are more inclined to identify risk factors and means of reducing them.[15] The present study results showed that in terms of awareness of warning signs of cancer, 66.6% of participating Tehran

Table 3: Relative and absolute frequency distribution of participating Tehran residents according to response to questions on awareness of warning signs of cancer

Warning signs	Yes		No		N/A		Total	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Changes in bowel and bladder habits	818	32.7	321	12.8	1361	54.4	2500	100
A sore that does not heal easily	1079	43.2	367	14.7	1054	42.2	2500	100
Abnormal bleeding	1186	47.4	295	11.8	1019	40.8	2500	100
Emergence of a mass	1685	57.4	207	8.3	608	24.3	2500	100
Difficulty in swallowing	839	33.6	409	16.4	1252	50.1	2500	100
Difficulty in digestion	945	37.8	370	14.8	1185	47.4	2500	100
Changes in moles and warts	1246	49.8	288	11.5	966	38.6	2500	100
Dry and noisy coughs	1060	42.4	325	13	1115	44.6	2500	100
Rapid weight loss	1479	59.2	228	9.1	793	31.7	2500	100

Table 4: Relative and absolute frequency distribution of participating Tehran residents according to response to questions on protective measures against cancer

Protective measures	Yes		No		N/A		Total	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Annual periodic examination	321	36.4	561	63.6	1618	-	2500	100
Regular oral examination	368	41.8	513	58.2	1619	-	2500	100
Periodic endoscopy	142	16.3	728	83.7	1630	-	2500	100
Periodic blood test	513	58.1	370	41.9	1617	-	2500	100
Periodic urinalysis and stool exam	401	45.4	482	54.6	1617	-	2500	100
Rectal exam for masses	75	8.6	796	91.4	1629	-	2500	100
Hepatitis vaccination	806	32.2	1694	67.8	0	-	2500	100
Rectal digital exam for prostate	48	10.8	395	89.2	2057	-	2500	100
Testes exam	77	6.5	1101	93.5	1322	-	2500	100
Mammography between 40 and 50 years old	119	27.2	318	72.8	2063	-	2500	100
Mammography after 50 years old	60	22.8	203	77.2	2237	-	2500	100

residents were in an unfavorable, 24.3% in favorable, and 9% in relatively favorable status. Petersen et al. believe that increased awareness of people leads to increased application of screening for timely detection of cancer.[16] Yavari et al. in a study titled "Women's awareness and performance in breast self-examination" found that more than 75% of women did not visit their doctors for early detection of breast cancer, and considered lack of awareness the main reason for this.[17] Sedighi et al. in a study conducted in 2004, titled "Women's knowledge of cervical cancer and impact of educational pamphlet on increasing awareness" found that women had little knowledge of cervical cancer, and 43.9% were not familiar with the term, and the rest had low to moderate knowledge,

Table 5: Relative and absolute frequency distribution of participating Tehran residents according to awareness (poor, moderate, high) of warning signs and protective measures against cancer

Protective measures	High		Moderate		Poor		Total	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Favorable	70	11.5	25	11.1	96	5.8	191	7.6
Relatively favorable	118	19.4	21	9.3	202	12.1	341	13.6
Unfavorable	420	69.1	180	79.6	1368	82.1	1968	78.7
Total	608	100	226	100	1666	100	2500	100
$\chi 2$=5.929, DF=4, p<0.001								

38% of women revealed they were not familiar with Pap-smear test, and the 58.5% that were aware of Pap-smear, did not know the right timing of this test. After intervention (reading educational pamphlet), awareness of 69.7 to 77.3% of women increased to high and very high levels in relation to definition of disease, symptoms, risk factors, and prevention methods. Generally, 97% of women with increased awareness to high and very high levels, recommend reading this pamphlet to all women.[18] Jokar & Ghiasi in a study in 1998, titled "Awareness, attitude, and performance of women toward breast cancer in the city of Ilam" showed a significant relationship between knowledge, attitude, and practice of women (P<0.001), and self-examination increased with increased knowledge and attitude.[19] Tuncay et al. in a study in 2006, titled "Adolescents' knowledge and behavior in relation to skin protection" showed a significant relationship between knowledge and application of protective measures (P<0.001).[20]

The present study results showed that the majority of subjects (78.7%) were in an unfavorable status in relation to protective measures against cancer, and only 21.2% were in favorable to relatively favorable status. Mulie & Konsuo in a study titled "Training people in relation to importance of protection against sunlight" showed that 59% of people did not know they had to protect their skin against sunlight.[21] Also, the results of a study by Cinar et al., titled "Knowledge, attitude and practice of adults in Turkey in relation to protection against sunlight and cancer", showed that application of protective measures increases with people's increasing knowledge.[22] Petti & Scully in a study titled "Knowledge and attitude toward oral cancer" showed that education increases knowledge about oral cancer.[23]

Study results showed that the lower the level of knowledge, the lower the percentage of applying protective measures is and vice-versa. Godazandeh et al. in a study titled "Knowledge and practice of women over 15 years of age in the town of Sari in relation to breast cancer" showed that improved level of community awareness and attitude toward breast cancer can play a positive role in women's screening practice.[24] Wright & Maree showed an insignificant relationship between perception of cancer and knowledge of warning signs and primary and secondary prevention, and that knowledge of warning signs does not help early detection of cancer.[25]

The results of the present study showed that the majority of Tehran residents had little knowledge of warning signs and did not use protective measures for preventing cancer. Since environmental factors are responsible for up to 80% of cancer, and that they are preventable, it is necessary to take action in relation to both primary and secondary preventions, so as to reduce mortality rates as well as huge costs incurred through timely detection. Thus it is necessary to make people aware of risk factors, warning signs, and screening. Therefore, it is recommended to use mass media such as radio and television, and educational booklets and brochures to increase public awareness of cancer and its warning signs. It is obviously clear and important that health teams in health centers should be used for public education. Also, through long-term planning, countrywide public awareness project can be held. Use of television animations, establishing educational websites specifically for cancer prevention, holding one-day seminars in Community Cultural Centers and parks, teaching students and employees, workers, and the general public

by setting up medical teams in every center, use of advertising banners and posters across the city, use of health messages texted through mobile phones, are measures that can increase people's awareness of warning signs. It is also necessary for authorities to place cancer prevention educational programs on top of their agenda.

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